Government of Saskatchewan

Annual Report 1986-87

Saskatchewan Highways and Transportation

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Letter of Transmittal

The Honourable Frederick W. Johnson
Lieutenant Governor

Sir:

It's my pleasure to submit to you the 1986-87 Annual Report for Saskatchewan Highways and Transportation.

I'm pleased to report that Saskatchewan Highways and Transportation has continued its well known tradition of providing excellent service to our province.

The year will be remembered as one of significant changes, challenges, and achievements. Commitment from employees has been excellent and ensures Saskatchewan a quality transportation system.

Yours sincerely,

Grant Hodgins
Minister

April 1, 1987

The Honourable Grant Hodgins
Minister of Saskatchewan Highways
and Transportation

Sir:

It is my pleasure to present to you the annual report of Saskatchewan Highways and Transportation for the fiscal year ending March 31, 1987. This report provides a detailed review of all department activities.

These are indeed times of change in the transportation sector across Canada. Department staff have been very busy during the past year addressing many of these issues. A major brief related to the federal government's revisions to the National Transportation Act was presented to the Federal Standing Committee on Transportation. Revisions to this Act will certainly have a major effect on the economy of the province. The department also made a submission at the variable rate hearings conducted by the Canadian Transport Commission in Regina.

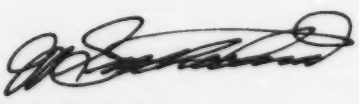
Regulatory initiatives in the trucking industry introduced by the Federal Government in1985 continued at an accelerated rate this past year. Legislation pertaining to trucking re-regulation in Canada will become law on January 1, 1988. In co-operation with the other provinces and the Federal Government the department has participated in the development of a National Safety Code. Critical elements of this code will be in place when the federal legislation is implemented in1988.

The department continues to place emphasis on a broad range of research initiatives. A prime example is in the area of truck technology where new concepts are being developed and put into operation in our continuing efforts to increase transportation efficiency and productivity. Research is also continuing to develop new materials and procedures to increase the department's effectiveness in program delivery.

Several senior staff members of the department have been actively involved in a major industry/government study related to truck stability and their impact on pavements. This study will be completed in1987 and should provide improved transportation productivity and safety in Canada.

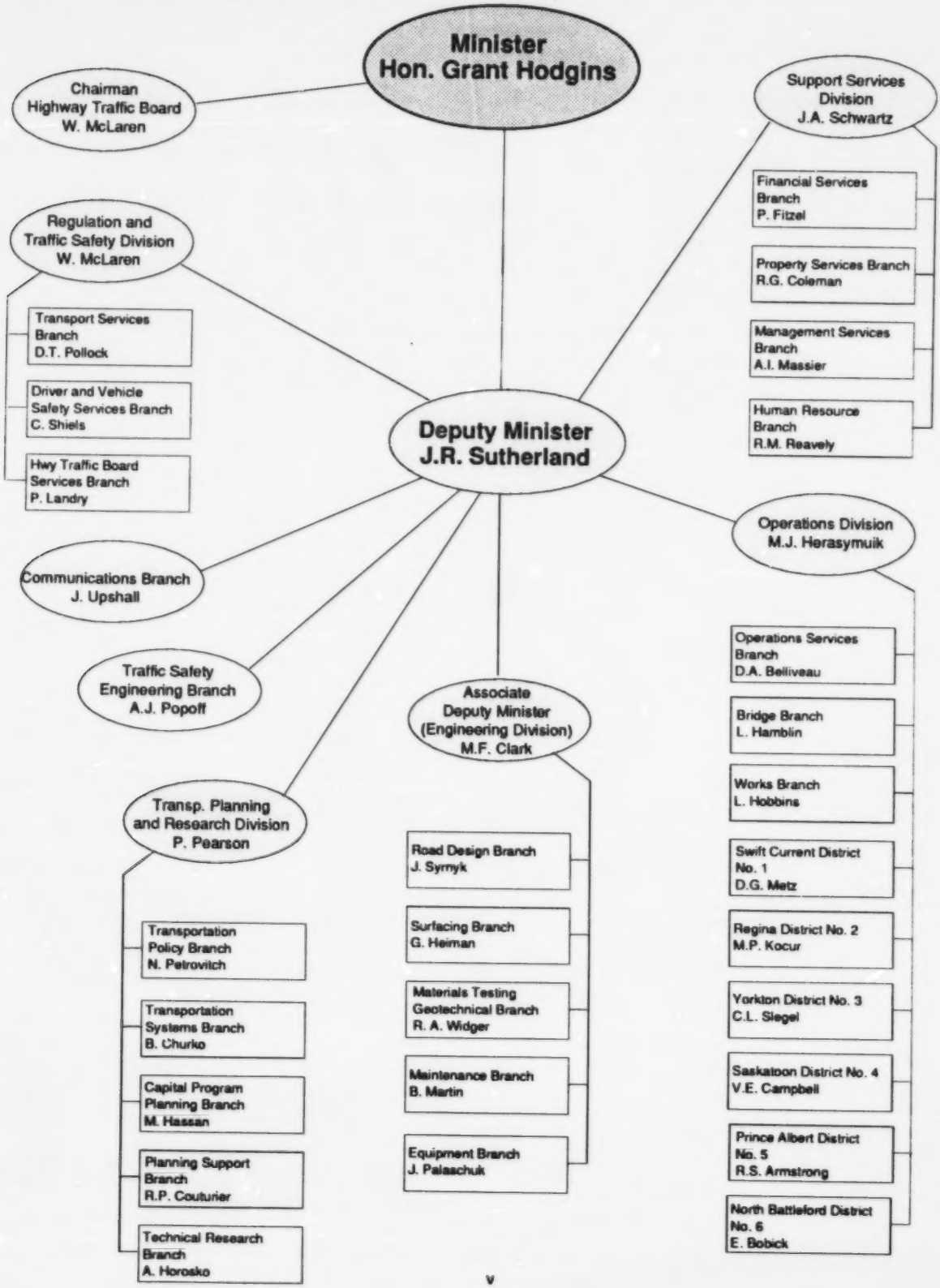
Emphasis continues to be placed on the development and enhancement of management information systems. A pavement management information system currently under development is designed to improve the management of the province's paved highway system. Enhancements have also been made to several other current systems. Organization reviews of several branches have been completed during the year to improve the department's overall managerial effectiveness.

All department staff are to be commended for their dedicated efforts during the past year in providing safe and efficient transportation services to the traveling public.



J. R. Sutherland
Deputy Minister

Organization Chart As of March 31, 1987



Major Objectives

- To provide, maintain and protect provincial highways, roads, airports and related facilities at an acceptable level of service to users.
- To develop policies and programs for the purpose of improving transportation systems for the movement of people and goods.
- To provide transportation systems and services that contribute to the economic, social, cultural and environmental well-being of the province.
- To achieve excellence in the management of human, technological, financial and information resources of the Department.
- To improve transportation safety for the purpose of reducing the incidence and severity of accidents.
- To provide assistance to local governments for the improvement of community airports and highway routes through urban areas.

Mission

To plan, implement and manage an integrated multi-modal transportation system which provides for the safe, efficient movement of people and goods at a level of service acceptable to the public for the economic and social development of the province, within the mandate and resources provided by the Government of Saskatchewan.

Traffic Safety Engineering Branch

Al Popoff

The objective of the Branch is to reduce traffic accidents, deaths and injuries in Saskatchewan, with special emphasis on provincial highways. To achieve this objective the branch is responsible for the following activities:

- managing a central traffic accident information system for Saskatchewan and providing relevant data to all users
- investigating traffic accident locations and related traffic engineering studies
- developing and monitoring an annual traffic safety improvement program for provincial highways
- studying and recommending appropriate levels of posted speeds on highways
- administering access control along major provincial highways
- managing the traffic control devices along provincial highways to ensure uniformity and adequacy

Traffic Accident Information System

The Traffic Accident Information System (TAIS) has now completed eight years of successful operation. Detailed information about 310,000 traffic accidents is available to those responsible for traffic safety. The data is being used extensively by many to develop and monitor countermeasure programs.

The seventh annual report which summarized the 1986 accidents was published and 3,800 copies were circulated. To gain wider coverage and create greater awareness 10,000 copies of a pamphlet highlighting TAIS information was also distributed.

About 1,100 customized reports were distributed to local governments at year end. Throughout the year, specialized reports were made available to user agencies on a monthly and quarterly basis.

The first full year of an early accident reporting system was completed. Telephone reports were received from police about accidents involving death, school buses, large trucks and trains. The system allows for a response with traffic control and assistance at the scene if required.

The branch completed comprehensive accident summaries and analysis for improved planning of traffic accident countermeasures on provincial highways.

Traffic Control Devices

Good traffic control and in particular signs, play an important role for efficient traffic operations and safety. Highway signs warn drivers, indicate regulatory requirements, provide navigational information and inform drivers about facilities and points of interest.

During the year 16 policy/standards were completed for the Saskatchewan Traffic Control Devices Manual and about 28,000 signs were ordered and delivered by the supplier to meet department needs.

A system was developed to monitor the ongoing ordering, production and delivery of signs. The system allows the branch to more efficiently co-ordinate the department's signing requirements.

Legislation and policies have been amended to provide opportunities for local businesses and communities to promote their attractions to motorists. This private signing can assist visitors and the private sector.

Communities are also now permitted to erect official promotional signs on provincial highways. Five communities have now participated.

Safety Improvements and Studies

The Department continues to emphasize safety improvements on provincial highways. Improvements at problem locations and overall system safety improvements continue to be an effective means of upgrading the highway to reduce accidents and injuries. There has been a reduction of 48% in the injury accident rate in the last 10 years on the provincial highway system.

The branch participated with District offices in intensive reviews at 14 locations with traffic operational problems. An additional 12 problem locations were investigated and 15 speed zone requests were studied.

A research project was completed about the effectiveness of roadside delineators for the positive guidance of traffic.

Other Branch Activities

The branch continues to be involved in a variety of safety promotional activities.

- 175 new members were enrolled in the Seat Belt Survivors Club for a total of 2,800 members
- the branch participated on Seat Belt promotional and Lights on for Life Committees
- branch staff held meetings in all Districts to determine problems, and to design policies and programs related to signing
- completed 17 new Control of Access Plans.

Total Number of Accidents by Road System

YEAR	1979	1980	**1981	1982	1983	***1984	1985	1986
Highways	5,921	6,005	6,211	6,008	5,561	4,877	5,061	4,872
Rural	5,007	5,403	5,631	5,154	4,753	4,025	4,071	3,834
Urban	33,386	33,538	25,510	28,487	28,921	23,208	23,117	24,063
*Other	3,196	3,328	933	717	620	536	450	605
TOTAL	47,510	48,274	38,285	40,366	39,855	32,646	32,699	33,374

Injuries by Road System

YEAR	1979	1980	1981	1982	1983	1984	1985	1986
Highways	2,318	2,407	2,266	2,155	1,967	1,822	1,984	1,983
Rural	1,616	1,684	1,772	1,598	1,477	1,421	1,465	1,413
Urban	4,685	4,301	4,350	4,510	4,597	4,453	4,820	5,249
*Other	462	492	272	253	221	208	196	284
TOTAL	9,081	8,884	8,660	8,516	8,262	7,904	8,465	8,829

Fatalities by Road System

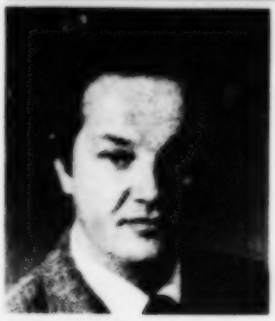
YEAR	1979	1980	1981	1982	1983	1984	1985	1986
Highways	143	140	139	118	126	105	100	130
Rural	55	62	67	61	53	61	48	56
Urban	64	43	49	52	39	44	46	42
*Other	28	20	7	9	17	11	20	17
TOTAL	290	265	262	240	235	221	214	245

* Other locations include accidents that occurred in areas such as Parks, Indian Reserves, Provincial Forest Roads, or other areas not defined as a Provincial Highway, Rural Road, or Urban Street.

** Beginning in 1981, private property accidents were not recorded on T.A.I.S.

***Beginning in 1984, the minimum reporting threshold for property damage accidents increased from $200 to $500.

Communications Branch



Jack Upshall

The mission of Communications Branch is to communicate programs, policies and accomplishments consistent with the department's mission, which will result in an informed public who are aware of, and familiar with, the purpose and services provided by Highways and Transportation.

Branch staff contribute to this mission by setting and adhering to four primary objectives:

- effectively communicating interbranch activities, department policies, and changing trends in the transportation industry to department employees, special interest groups, and the general public
- gathering and assessing information to assist in the development of programs and projects to be communicated to the public
- establishing approval systems, production procedures and selecting appropriate distribution systems as they apply to communication materials for the public
- adhering to a professional code of ethics as set out by recognized communications/public relations associations.

In addition to these primary objectives, Communications Branch provides two mandatory responsibilities:

- the branch coordinates the production and distribution of official and statutory publications
- the branch provides a central information service for public inquiries.

Highlights

The highlight of the year was the **Rick Hansen, Man In Motion Tour**. It all began for Highways and Transportation in November 1986. The Saskatchewan committee for the Man In Motion tour was formed and immediately, a representative from Highways and Transportation was requested. Nominated for the role was Robin Sparks, Supervisor of Public Relations.

Robin's extensive experience in public relations and her knowledge of the department went to work immediately. What evolved was a team effort from many department employees who contributed to the overall success of the Hansen visit in Saskatchewan.

Through Robin's efforts, the branch coordinated the department's role in ensuring Hansen a safe and speedy journey through the province in February 1986, a notoriously inclement season.

Department activities during Hansen's tour ranged from snow plowing; traffic control; signage; and public information. The branch worked closely with staff from the Regina, Swift Current, and Yorkton districts to ensure these requirements were met, and in fact they were exceeded.

The branch utilized the Highway Hotline as a vehicle for public information. Just prior to Hansen's arrival, the Honourable Grant Hodgins, announced that during Hansen's stay in the province, the Highway Hotline would be known as the Hansen Hotline, and the public could call any of the nine numbers to get an update on Hansens daily location. This proved to be a pivotal service to the Saskatchewan Organizing Committee. Special thanks must be given to the Regina, Swift Current, and Yorkton Maintenance staff and all department employees who worked so diligently to ensure Rick's safety.

Official Publications

There were 550,000 Official 1987 Highway Maps printed and distributed. This 1987 edition featured the four major east/west tourist routes through the province, and introduced a new fifth route, the CanAm route. This new highway route runs north-south through the heart of the United States, entering Saskatchewan at the Port of Oungre on Highway 35, and ending at Southend on Highway 102.

Branch staff co-ordinated the printing and publication of the 1985-86 Annual Report for the department. Two thousand copies were printed and distributed.

Branch staff co-ordinated the printing of the Traffic Accident Information System (TAIS) report and pamphlet. There were 5,000 reports, and 10,000 pamphlets printed.

Branch staff produced 5,000 copies of the Construction Map. In addition, the branch produced 5,000 copies of the 1986-87 Construction Projects Listing.

Information Services

Approximately 738,607 pieces of information were distributed to the public through the Public Communications Branch. There were approximately 5,496 telephone inquiries received on the general inquiry line.

There were 213 news releases prepared and 10 information pamphlets distributed by branch staff. News releases plus the quantities from the pamphlets brought the total distribution of information pieces to 692,142. There were 46,465 forms and letters distributed by branch staff.

The branch also prepared one audio visual production, two redi-prints, four banquets, three special events, and arranged for 282 photo reprints.

Rick Hansen's Man In Motion Tour received the assistance of department staff when it crossed Saskatchewan

Operations Division

The mission of the Operations Division is to implement and administer operational programs and manage the designated provincial transportation facilities for the department within the specified levels of service and resources. The Operations Division responsibilities are carried out through six districts and three head office branches.

Construction progress was delayed in the fall of 1986 due to inclement weather with the result that a large number of projects had to be carried over into 1987. The construction of the Meridian Bridge was completed and opened to traffic in October of 1986. The grading on No. 106 Highway (Big Sandy Lake Cutoff) was essentially completed with the road open to traffic for the winter. Work continued on No. 41 Highway from Wakaw to Melfort. In total 319 kilometres of grading and 633 kilometres of surfacing were completed.

The riding quality of the highway system was generally maintained during the past year. Many sections of the paved system required extensive patching. Increased emphasis will have to be placed on the rehabilitation of the paved system because of its condition and age. Due to the mild winter, no major maintenance problems were experienced.

New equipment for spot sealing of highway surfaces is being evaluated by the department. Some new innovations developed by department staff are also being tested.

Continued emphasis is being placed on productivity improvements in all aspects of the division's activities.

Details of specific programs and accomplishments are provided in the following individual branch and district reports.

M. J. Herasymuik
Executive Director
Operations Division

Grant Hodgins
Minister,
Highways and Transportation

J.R. Sutherland
Deputy Minister

M.J. Herasymuik
Operations Division

D.A. Belliveau
Operations Services
Branch

L. Hamblin
Bridge Branch

Len Hobbins
Works Branch

D.G. Metz
Swift Current
District No. 1

M.P. Kocur
Regina
District No. 2

C.L. Siegel
Yorkton
District No. 3

V.E. Campbell
Saskatoon
District No. 4

R.S. Armstrong
Prince Albert
District No. 5

E. Bobick
North Battleford
District No. 6

Operations Services Branch

Operations Services Branch provides executive, technical and financial services to the Operations Division.

Major Activities

Management of centralized activities related to tendering, scheduling and contract administration.

Development and control of the department's annual capital and maintenance programs and budgets.

Administration of purchasing construction and maintenance materials.

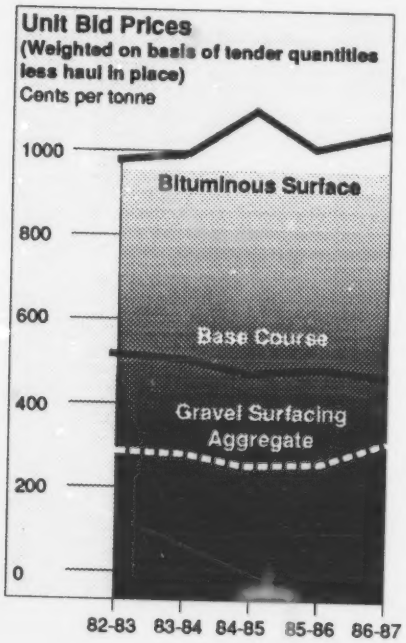
Coordination of cost-shared programs.

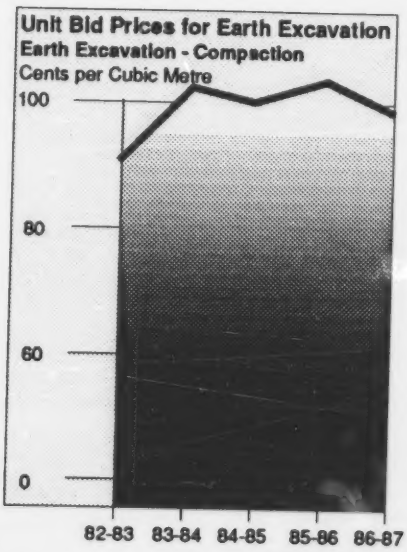
Construction Tenders

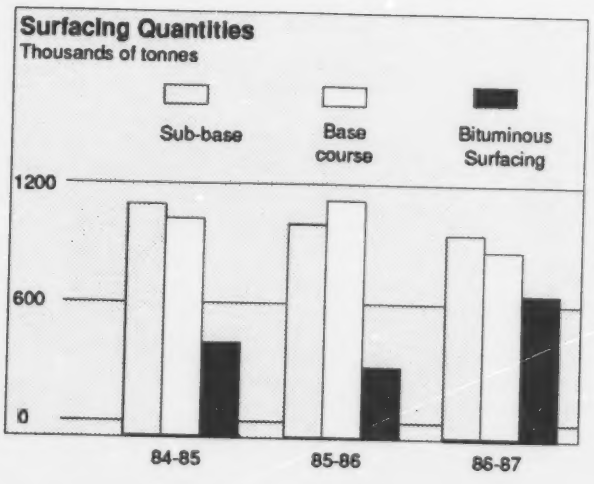
Ninety-two construction tenders valued at $44.5 million were awarded during 1986-87. In comparison with the previous year, 30 fewer tenders were issued with an $9.5 million decrease in the value of contracts awarded.

Contracts are tendered throughout the year to provide balanced workload for contractors. In the fall and winter, heavy emphasis is placed on processing aggregates so that much of the hauling can be done in the winter to minimize damage to haul routes and to create winter work.

Unit bid prices for earthwork and base course decreased while sub-base gravel surfacing aggregate and bituminous surface course increased compared to the previous year.







Grading

The amount of earth excavation work completed during the year was 9 026 650 m³.

There were 309 km of new construction completed with 46 km of grading work underway at year end.

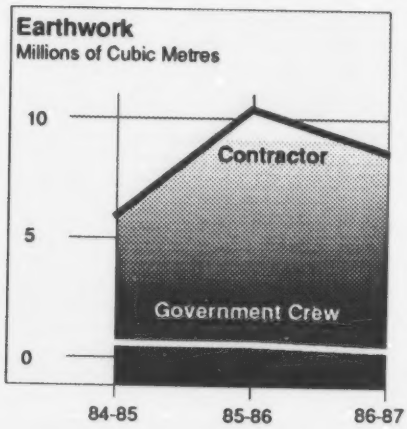
Surfacing

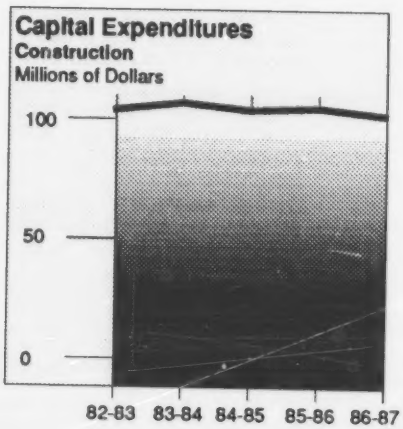
The quantity of bituminous mix on contracts in 1986-87 increased to 678 800 tonnes from 386 800 tonnes. The quantity of sub-base and base material used in 1986-87 decreased to 1 819 500 tonnes from 2 148 542 tonnes in 1985-86.

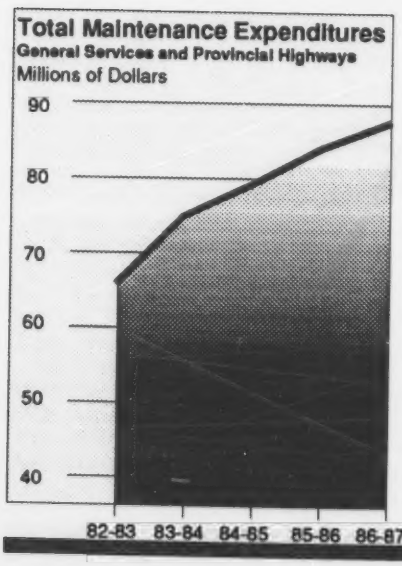
During the year 15 km of oiling, 263 km of pavement C, 149 km of new pavement and 252 km of new rehabilitation were completed.

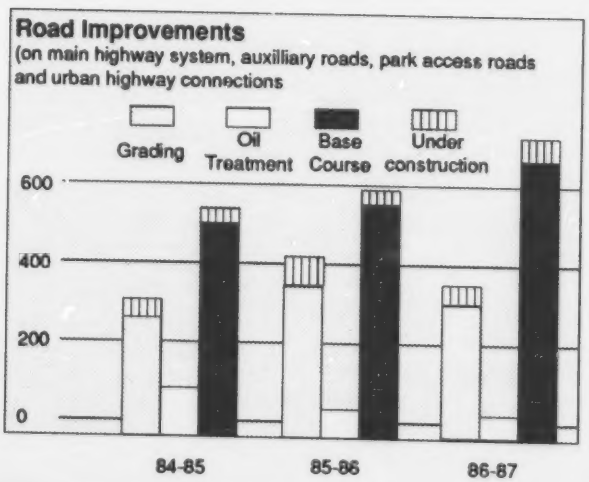
Urban Surface Transportation

Under the Urban Assistance Program $5,487,111 was provided to assist 33 communities to improve provincial highway routes.









Air Transportation

Thirty-six local governments participated in the Airport Assistance Program administered by the branch. The department provided $205,120 in assistance under the program. The department also spent $19,960 towards the installation of a non-directional beacon at one airport. $654,706 in capital costs was spent at three provincial airports.

Rural Transportation Assistance Program

Operations Services Branch administered a program to provide transportation services to communities in rural areas not presently served by other public transportation.

The provincial government, through the Department of Highways and Transportation, underwrites the net operating cost of nine routes which totalled $186,237 in 1986-87.

In addition to the above routes, Operations Services also administered the bus lines into Sandy Bay and Deschambault in northern Saskatchewan. During the year $62,689 was spent on these two northern feeder service lines.

Other Highlights

Automatic railway crossing signals were installed at seven locations during the year at a cost of $42,870.

The department provided lighting at 66 highway intersections at a cost of $336,558.

76,191 calls were handled on the department's Hotline Winter Road Information Service.

324 purchase orders for construction and maintenance materials valued at $32,312,418 were processed.

809 payments to contractors were processed totalling $64,624,980.

Bridge Branch

The Bridge Branch mission is to design, construct, maintain and manage the bridge component of the department's road transportation system, and to provide a source of structural and bridge-related expertise for other department and government units, to established levels of service and within available resources.

Design

Design work was undertaken for seven precast concrete bridge projects involving approximately 2 200 m² of roadway area. Plans were also prepared for traffic barrier retrofits totalling 540 m and involving eight bridges.

Commissions were awarded for the design of two railway-highway grade separation structures located on the Yellowhead Highway. Design work was completed for the proposed CN Rail subway located east of Borden, and preliminary design was completed for the CP Rail subway located at Lloydminster.

Construction

The construction of the major bridge located on Highway No. 17 over the North Saskatchewan River north of Lloydminster was completed in September. Traffic began using the new structure on October 10, 1986. The cost of this bridge was shared equally with Alberta.

A major betterment was completed on a 324 m bridge located on Highway No. 21 over the South Saskatchewan River near Leader. The work included restoration of the reinforced concrete deck surface, installation of a waterproofing membrane and the repaving of the deck with an asphaltic concrete wearing surface.

Two new bridges were constructed using standard modular components of precast concrete.

Maintenance

Bridge deck restoration projects were undertaken on five grade separation structures located near Moose Jaw. Four of the projects involved the use of a cathodic protection system in combination with a high density concrete overlay. The remaining project involved the repair of the deck and its protection with a waterproofing membrane and pavement.

Minor repairs were completed on another 127 bridges located throughout the highway system. Five bridges were replaced by culvert installations.

The branch managed the repair of the Outlook Bridge, required to correct the major damage caused by an overheight vehicle. Work on a temporary repair was started within 48 hours and the bridge was re-opened to traffic within eight days of the accident. All structural repairs were completed within three months.

Other Highlights

Programmed inspections were done on 230 bridges and the concrete decks of 42 bridges were monitored for the corrosion of reinforcing steel.

The branch assisted in the evaluation of 25 permit requests associated with the bulk commodity haul policy, and reviewed 900 referrals for single trip overweight vehicle permits.

Assistance was provided to district offices for six sign upgrading projects.

Summary of Bridge Work Done During 1986-87 on Provincial Highways

Highway and Control Section	Location	Description of Work
1-11	Over Highway No. 39 near Moose Jaw	Cathodic Protection installation on two concrete bridge decks
1-11	Over Service road near Moose Jaw	Cathodic Protection installation on two concrete bridge decks
2-6	Over Moose Jaw River at Moose Jaw	Major deck repairs to 133 m five span bridge
3-1	Over Smoking Tent Creek near Erwood	Upgrading of 18 m wood pile bridge
3-1	Over stream near Erwood	Install steel traffic barrier on 6 m wood pile bridge
3-11	Over Sturgeon River near Prince Albert	Construct 48 m five span bridge with precast concrete deck
17-7	Over North Saskatchewan River north of Lloydminster	Completed construction of 384 m six span steel girder bridge
18-5	Over Long Creek near Oungre	Reconstructed 36 m three span bridge with precast concrete deck
21-8	Over South Saskatchewan River near Leader	Major deck repairs to 324 m five span steel girder bridge

Works Branch

Works Branch functions in four main areas: grading, surfacing, bridges and winter road construction. The branch provides these and other specialized construction services for the Department of Highays and Transportation and other government departments and agencies.

The branch employs between 120 and 140 people during the construction season. These include equipment operators, truck drivers, plant operators, cooks, administrative personnel and supervisors. The nature of work usually requires people to be away from home for long periods of time, working out of mobile self-contained camps.

Grading Section

One grading crew moved 236 000 m³ of earth material during the fiscal year on Highway No. 55 north of Big River with the use of private and government equipment.
82 907 m³ of select sand and 32 966 tonnes of base course was placed under contract with a private contractor on this same section of road.

Surfacing Section

Three surfacing crews completed various road and custom work projects throughout the province. Projects include cold mix bituminous surface course, thermopatch, subgrade preparation and deep patching. The crews placed 5 392 tonnes of cold mix bituminous surface course; completed nine oil surface custom work projects throughout the province for various R.M.'s, towns and villages; filled 13,961 depressions and 60 872 m² of wheel ruts on various highway surfaces which required
1 200 tonnes of sand, sulphur and asphalt mix.

Extensive subgrade drying and clean-up work was undertaken on Highway No. 106 in the Big Sandy area on grade that was constructed during the winter of 1986 by private and government crews.

Bridge Crews

The six bridge crews constructed 57 new bridges and repaired 139 bridges for the Department of Highways and Transportation, Department of Rural Development, Duck's Unlimited and the Water Resources Board. A total of 4 459 m² of high density concrete overlay was placed on five bridges in the Moose Jaw area. Major deck repairs were made to the Chesterfield Bridge over the South Saskatchewan River north of Leader.

All crews were combined in an all-out effort to get a 76.2m span of the Outlook Bridge over the South Saskatchewan River back to service after it was damaged when struck by an overheight load on December 16, 1986. The crews worked around the clock starting at noon on December 20th and completing the repairs enabling the crossing of normal traffic the evening of December 23rd.

Winter Roads

40.3 km of winter road was constructed to Wollaston Post over Wollaston Lake from Hidden Bay on Highway No. 905.

Training

Works Branch completed 176 man days of training in management, equipment repair and safety.

Swift Current District

Swift Current District staff are responsible for maintenance, construction and design of all highways within the district boundaries. There are 4 263 km of roadway within the district.

Design and Testing

The Design section is responsible for designing highway subgrades, safety improvement projects, illumination projects and miscellaneous projects for the special construction program. This section also operates the District Materials Laboratory.

The Design staff completed 15 km of subgrade design and 18 km of preliminary survey during the year. Soils Laboratory staff processed a total of 9,177 samples for gravel pit control, subgrade, pavement design and construction contract administration. Two projects were commissioned to consulting engineers in 1986-87 and they completed 18 km of preliminary survey and 15 km of subgrade design.

Construction

The Construction Engineering section is responsible for the supervision of construction projects, the materials location program and the cost-shared programs.

During the year, 109.2 km of subgrade was constructed along with 153.8 km of pavement which included 70.9 km of cold-mix bituminous surface course, 48.8 km of hot-mix bituminous surface course. In addition seal coat was constructed on 23.7 km of subgrade.

Some of the major projects completed were:

- grading of the westbound lanes of Highway No.1 from west of Webb to east of Gull Lake
- grading and paving on Highway No. 51 from Dodsland grid to Kerrobert
- grading and paving on Highway No. 42 from Central Butte to Lake Diefenbaker
- paving on No. 37 Highway from Shaunavon to 32.3 km south
- resurfacing on Highway No. 7 from west of Kindersley to Flaxcombe.

The materials location crew conducted material searches which resulted in the location of 379 000 m³ of sand and gravel.

The City of Swift Current received a total of $386,964 under the Urban Assistance Program for paving, sidewalk and lighting projects on various eligible streets.

Five urban centres under 5,000 population received a total of $371,178 for sidewalk, curb and gutter, and pavement overlay projects. Thirteen communities received $39,437 to develop, operate and maintain community airports.

Maintenance

Maintenance activities started early and progressed well throughout the year. Heavy rains in the fall caused flooding on several highways in the southwest corner of the District.

Maintenance and private sector forces used 297 150 tonnes of crushed aggregate, 92 050 tonnes of cold mix and 17 698 100 litres of liquid asphalt to accomplish the following:

- 220 750 m² of deep patching
- 2 752 900 m² of spot sealing
- 396 km of seal coating

In addition, private sector forces produced 65 000 tonnes of cold mix and 250 500 tonnes of crushed aggregate.

The district operates 25 section crews and six special crews that are located in 21 communities within the district and supplements these with private sector services to carry out the maintenance program on the highway system in the district consisting of:

- 154 km of gravel surface
- 2 491 km of oil treated surface
- 1 303 km paved surface
- 166 km paved surface - four lane
- 59 km tourist facility roadways

The district operates two heavy duty equipment repair shops in Swift Current and Rosetown that are responsible for maintaining a fleet of 250 motorized and sundry pieces of equipment.

Regina District

The Regina District is responsible for 4 976 km of provincial and public highways, including 113 km of tourist facility access roads.

The district highway system was increased in 1986 and included approximately 19.6 km of takeover of Highway No. 46 from Balgonie to Regina.

In addition to regular maintenance activities, major highway improvements included subgrade, surfacing, rehabilitation and seal coat construction work.

Design and Testing

During the year 42.1 km of field survey, 42.7 km of subgrade design and 94.73 km of pavement design was completed.

483 000 m³ of sand and gravel was tested and located. Construction and maintenance activities used 629 280 m³ of sand and gravel. Public organizations and private individuals obtained 370 126 m³ of gravel under 144 separate permits.

Construction

Construction crews graded 29.7 km and surfaced 46.2 km. Another 34.3 km of paved highway was rehabilitated and 238.6 km seal coated.

The district administered 38 major grading, paving, seal coat and aggregate crushing contracts. Grading and paving work was completed on Highway No. 363 southwest of Moose Jaw and Highway No. 48 at Kipling. Paving work was completed on Highway No. 39 northwest of Weyburn.

Inclement weather delayed construction progress on grading and/or paving projects such as Highway No. 46 east of Regina, Highway No. 18 east of Oungre, Highway No. 334 west of Corinne. These projects will be completed in 1987.

District attempted to re-establish pavement cross sections or remove the more severe rutting on various highway test sections using two types of heater scarifier equipment. The machine that could do both, scarify and add new mix to produce a thin pavement overlay appeared to be most cost effective in achieving the project objectives. Pavement ride quality still requires further development before equipment and process are considered as a viable alternate to the conventional overlay methods of re-establishing pavement cross section and ride quality.

Maintenance

Maintenance crews produced 97 500 tonnes and applied 87 500 tonnes of asphalt patching mix, 16.2 million litres of liquid asphalt, spread 272 000 tonnes of aggregate and applied 21 500 tonnes of sand and 12 000 tonnes of salt for winter ice and snow control. $184,500 was expended to spray highway right-of-ways to control the continued severe grasshopper infestation in 1986. Contractors applied 323.3 km of seal coat on oil treatment highways.

Highway maintenance is provided with 34 section crews and six special crews located in 32 communities throughout the district.

Equipment repair depots located at Weyburn and Moose Jaw provided repair and service for 568 pieces of maintenance equipment.

Shareable Programs

The cities of Regina, Moose Jaw, Weyburn and Estevan received a total of $1,640,000 under the Urban Assistance Program for street and traffic safety improvements.

The City of Regina completed safety improvement work on Arcola Avenue and pavement rehabilitation work on the Ring Road.

Twelve urban centres under a population of 5,000 received a total of $228,000 for street and traffic safety improvements. Six communities received a total of $68,400 to develop, operate and maintain community airports.

The Urban Assistance Program provided for maintenance of oil treated urban streets in 81 eligible communities. The department provided $36,300 to the 48 communities that participated in maintenance.

Other Activities

Highway safety and miscellaneous special construction improvements included improving subgrades with lime, improving roadway drainage, constructing loadometer sites, improving road information signs and providing safer highway accesses.

In addition, 22 intersections were illuminated with one or two lights. Guardrail was installed at 3 sites which included 2 bridges.

District received 92 inquiries related to private advertising signs, issued 26 private sign permits and established one private signing corridor at Girvin.

District staff successfully negotiated 169 property purchase and miscellaneous damage agreements.

District Winter Road Information Service (Hotline) received 27,168 telephone inquiries between April 1, 1986 and March 31, 1987. The hotline was operated at Regina, Weyburn and Moose Jaw.

The Regina District conducted field trials with two different heater scarifier machines to assess the machines' abilities to correct rutting problems in asphalt concrete pavements

Yorkton District

The Yorkton District staff are responsible for 3 079 km of provincial and public highways, including 60 km of tourist facility access roads and the operation and maintenance of the provincial airport at Hudson Bay.

Design

The Design Section carried out 9.2 kilometres of preliminary survey and highway design during the 1986-87 fiscal year.

An additional 5.2 km of re-design was undertaken on No. 8 Highway through the Qu'Appelle Valley to improve alignment standards.

Four grading tender packages were submitted during the year.

Consultant activity included:

- completion of the grading tender package on No. 3 Highway
- interchange functional design
- drainage study

Construction

District Construction Section staff supervised a total of 20 major contracts during the year which includes seven gravel crushing contracts. Twenty-two km of subgrade were constructed and 153 km were surfaced.

Some of the major projects completed during the year were:

- the surfacing of Highway No. 9 from the Qu'Appelle Valley to Stockholm
- the surfacing of Highway No. 8 from Rocanville to the Rocanville Mine Site and from the Qu'Appelle Valley to the north junction with Highway No. 22
- the grading of Highway No. 3 from Erwood to 20 km east
- the surfacing of Highway No. 38 from Kuroki to Kelvington and from Greenwater Provincial Park to Chelan
- the surfacing of Highway No. 35 from Rose Valley to Archerwill
- the surfacing of Highway No. 49 from the junction with Highway No. 38 to 13 km west.

Resurfacing of an eight km section of the Yellowhead Highway was completed between Springside and Insinger.

Other projects administered by District Construction staff involved several safety and drainage improvements on the highway system.

Maintenance

Oil treated surfaces generally continued to perform well and required only routine maintenance. Paved surfaces performed somewhat better in 1986/87. Our 1986-87 deep patch expenditures were $848,000 as compared to $1,128,000 in 1985-86.

Maintenance Section produced 50 700 tonnes of bituminous mix and applied seal coat on 343 km of highway surfaces. An average riding comfort index of 5.7 was attained on our oil treated surfaces.

The highway system maintained includes:

- 247 km gravel surface
- 1 009 km oil treated surface
- 1 823 km paved surface
- 60 km roadway within campground and provincial parks
- 16 picnic and campground sites
- 1 provincial airport

The district has 20 section crews, two gravel sectionmen, a seal crew, an asphalt mix crew and two sign crews located in 18 communities throughout the district. Private firms supplementing district maintenance forces carried out work under 132 day labour agreements valued at $1,175,000.

Materials

Materials section staff completed 115 km of grade hole drilling, four km of stratigraphy drilling, 16 km of borrow pit testing and 16 km of select borrow testing for subgrade and surfacing design purposes.

Gravel location crews identified 15 new sand and gravel deposits and re-tested 21 existing department-owned pits. The searches verified an additional 1 728 500 m³ of granular material. Eighty pits were resurveyed and quantities and plans were updated.

Staff issued 32 permits to public institutions and private individuals who removed 60 450 m³ of sand and gravel from department-owned pits this year. District construction and maintenance

activities used an additional 863 550 m³.

Staff completed eight pavement designs totalling 120 km of highway, three major geotechnical project reports and provided guidance on the preparation of geotechnical reports, grading soils plans and field testing done by private consulting firms.

The district testing laboratory completed 16 asphalt designs and performed various tests on 8,426 material samples.

Other Activities

The Special Safety Improvement Program included the installation of cable guardrail on No. 10 Highway east of Fort Qu'Appelle, a pedestrian crosswalk light at Archerwill and a truck turnout on No. 9 north of Hudson Bay.

The Delineation Lighting Program consisted of the installation of 15 lights at different locations for a total cost of $50,673.

The Yorkton District maintained 247 km of gravel surface roads during the year

Saskatoon District

Saskatoon District staff are responsible for construction, design and maintenance of all highways within the district boundaries. There are 2 538 km of roadway within the district.

Highlights:

- No. 41 Highway from Jct. No. 20 to Wakaw completed
- all highway route markers changed to new standard
- Outlook Bridge closed for repairs December 16 to December 23 necessitated due to damage by an overheight load.

Construction Section

Eighteen contracts were supervised by this section including 48 km of subgrade construction, one intersection treatment, five spot improvements, 22 km of recycled hot mix and 31 km of base overlay rehabilitation on Pavement B's.

$1.48 million in assistance was provided to the City of Saskatoon and four communities were provided urban assistance.

Design Section

This section carried out 44.0 km of highway location of second set of lanes for future four-laning, 45.9 km of centreline location, 36.0 km of field survey, and 28.0 km of subgrade design.

Special studies completed include the Langham access study, the Borden four-laning location and access study, the Borden median scale, the Chamberlain four-laning functional design. Additional projects designed were intersection treatments, delineation lighting at intersections.

Delineation lighting was installed at eight major intersections and community accesses. Lighting was installed on Circle Drive from Clarence Avenue West and at the junction of Highways No. 7 and No. 14.

Approximately 40 subdivision proposal requests were reviewed and recommendations made. Approximately 200 permit requests from Sask Tel, Saskatchewan Water Corporation, Sask Power and Natural Gas, P.F.R.A., Ducks Unlimited, etc. were reviewed and recommendations made.

Maintenance Section

The Maintenance Section accomplished the following improvements:

Seal Coat on Pavements	74.5 km
Seal Coat on Oil Treatment	148.6 km
Revert Oil Treatment to Gravel and Apply CaCl2	20.0 km
Deep Patching	66 488 m2
Thermo Patching	19.3 km
Asphalt Mix Produced	29 000 t
Ditch Cleaning by Youth Groups	701 km
Ditch Cleaning by Casual Labour	38 km
Seeding Right-of-Way	68.9 ha
Screened Winter Sand Purchased	2 689 t
Purchased Liquid Asphalt	3 870 029 L
Produced Cal Treat Sand	3 184 t
Winter Maintenance Usage:	
Sand	5 390 t
Salt	8 137 t

Maintenance costs were $7,858,059 of which $1,638,854 was for winter maintenance and $6,220,205 was for summmer maintenance.

Materials Section

Materials engineering staff completed or supervised the preparation or revision of 15 surfacing designs and nine geotechnical pre-engineering reports in Saskatoon and Swift Current Districts. Six consultants commissions were issued.

Twelve projects received specialized materials engineering input in the design or construction phase. A further eight studies were initiated, including detailed analysis of the McCloy Creek site stability. Monitoring of the Tall Oil Pitch asphalt rejuvenator test section, research into lime modification and monitoring of the seal coat test sections in Saskatoon and Swift Current Districts continued.

Laboratory staff performed approximately 13,640 individual tests on various material samples taken during field exploration or construction activities. Three Marshall mix designs were completed.

The Gravel Location Section tested four new sand and gravel deposits and retested 24 others. The field testing verified 457 000 m³ of gravel and
375 000 m³ of sand at a cost of 14.9¢/m³.

Prince Albert District

The Prince Albert District is responsible for 5 755 km of public and provincial highways. The district is also responsible for the maintenance and operation of the Uranium City and La Ronge Airports and for the maintenance of nine gravel airstrips.

Design and Testing

Design staff completed 92 km of preliminary survey and 45 km of final subgrade design during the year. Three detailed location studies were also completed.

Gravel location crews located five new gravel sources containing approximately 325 000 m³ and 9 new sources containing 400 000 m³. These new sources will result in considerable savings in future haul costs. Twenty-five existing gravel sources were re-assessed, after use, to determine remaining quantities.

District Lab staff provided test results on 5,000 individual samples. The test results are used for quality control purposes and to provide information in contract tender documents.

Construction

During the year 59 km of subgrade were constructed along with 121 km of pavement.
The grading of Highway No. 106 in the vicinity of Big Sandy Lake was generally completed and opened for traffic in the fall, saving the public 18 km in travel distance between Prince Albert and Creighton. Other grading jobs completed include Highway No. 55 in the vicinity of the junction of Highway No. 123, Highway No. 55 north of Big River and Highway No. 12 south of Shell Lake. Approximately 40% of the grading on Highway No. 368 in the vicinity of Pathlow was completed.

Resurfacing was undertaken on Highways No. 23 north of Arborfield, Highway No. 3 east of Mistatim and west of Shell Lake and Highway No. 55 west of Smeaton and north of Debden.

The construction section also supervised upgrading of facilities at the La Ronge Airport and the Cumberland House Airport plus a number of special maintenance, mixing, sealing and crushing projects.

Maintenance

The highway system maintained includes 3 146 km of gravel, 1 016 km of oil treatment and 1 593 km of pavement.

A variety of maintenance activities were carried out as follows:

Deep Patching	634 000 m²
Seal Coat	193 km
Clay Capping	88 km
Dust Treatment	382 km

To accomplish this work the district has 36 section crews and nine special crews located in 26 communities throughout the district.
Winter was one of the mildest on record, however, snowfall was somewhat above normal. The mild winter did not result in any major icing problems and salt usage was down approximately 35% from the previous winter to 7 000 tonnes.
District shop staff provided excellent service to repair and overhaul a fleet of approximately 800 units including equipment assigned to Works Branch.

Other Activities

In addition to the normal administration duties, District Administration staff processed 85 over-dimensional permits, 48 material requisitions, 148 gravel and sale of material invoices, 831 construction and maintenance material invoices and 473 custom work and barge billings. Excellent results were again achieved in the area of processing accounts for payment in a timely manner.

A total of 11 communities participated in assistance programs that included Urban Assistance, Airport Assistance and Urban Traffic Safety. Delineation lights were installed at seven different locations.
Winter roads were operated from Cumberland House to Sturgeon Landing and from Highway No. 905 to Wollaston Lake.
The Wollaston Lake Barge operated from June 23, 1986 to October 4, 1986 making 150 crossings to the community of Wollaston Lake.
The bridge across the Carrot River on Highway No. 55 was lost in late May due to a grass fire. A local detour using culverts was provided for the balance of the year.

North Battleford District

The North Battleford District is located in the northwest corner of the province and is responsible for 3 620 km of public and provincial highways. The district is also responsible for the operation and maintenance of the Meadow Lake and Buffalo Narrows Airports and for the maintenance of five gravel airstrips.

Design

Design section staff completed design on 40 km of grading. Four tender packages were completed. Detail location studies were completed on two projects.

Staff completed 12 special reports.

Materials

Staff completed 10 surfacing designs, five geotechnical preliminary engineering reports and carried out special technical studies on nine different projects. North Battleford District provided approximately one-half of the materials engineering requirements for the Prince Albert District.

Check tests and monitoring of technical specifications was carried out on all active projects.

Other Work

- eight gravel pits retested, 40 gravel pits resurveyed and 58 new sources tested
- preliminary soils investigation on five projects totalling 88 km
- laboratory testing of gravel and soil samples.

Construction

During the year 34 km of subgrade were constructed and 79 km surfaced including three km of hot mix pavement.

The district's construction program was administered through 14 contracts.

Four kilometres of oil treatment surfacing were completed on Highway No. 155 south of La Loche. Oil treatment surfacing has now been completed between Green Lake and La Loche.

Surfacing was completed on Highway No. 17 from the junction of Highway No. 14 to 18.8 km north and on Highway 55 from the west junction of Highway No. 4 to 17.9 km west.

Surfacing commenced on Highway No. 29 with 35.7 km completed.

A total of three km on Highway No. 16 in the vicinity of Lashburn and Marshall was resurfaced with hot mix pavement.

Subgrade construction was completed on Highway No. 21 from the junction of Highway No. 3 to 15.3 km south.

Subgrade construction commenced on Highway No. 17 from the junction of Highway No. 3 to 13.7 km north. Access to the new bridge over the North Saskatchewan River was completed and opened to traffic in October, 1986.

Subgrade construction commenced on the west bound lanes of Highway No. 16 between Marshall and Lloydminster.

Maintenance

The highway system maintained by district forces includes:

- 1 380 km of gravel surface
- 1 050 km of oil treated surface
- 1 170 km of paved 2-lane surface
- 20 km of paved 4-lane surface
- 50 km of roadway in campgrounds and provincial parks

Maintenance is provided by 26 section crews and seven special crews.

District shop staff provide repair service for a fleet of approximately 350 power units and numerous pieces of sundry equipment.

Maintenance forces used 8 729 300 litres of liquid asphalt, 288 200 tonnes of processed aggregate and 39 900 tonnes of bituminous mix.

The district seal crew completed a total of 283 km of seal coat. This was made up of 185 km of seal on oil treatment, 32 km of seal on construction and 66 km of rehab seal.

Fifty kilometres of subgrade were stabilized with clay or calcium chloride. In addition, 125 km of the Cluff Lake road was gravel stabilized with 30 000 tonnes of crushed aggregate.

Dust treatment with calcium chloride and calcium lignosulphonate was completed on 139 km of northern roads.

590 tonnes of lime were used to improve the subgrade on about 96 700 m² of various oil treatments and pavements.

The district tendered the crushing and stockpiling of 130 000 tonnes of traffic gravel and 143 500 tonnes of bituminous repair aggregate. In addition, 41 700 tonnes of bituminous mix were tendered.

For winter maintenance, district forces used 8 500 tonnes of salt, 8 200 tonnes of sand and 33 500 litres of calcium chloride. This effort was required to maintain good winter driving conditions in an extremely mild year in which the snowfall was below the long term average and icy roads persisted due to rain and quickly changing temperatures.

Highlights this year included several grid road takeovers. Effective July 7, the district took over the maintenance of 2.8 km of oil treatment at Metinota completing the access link between Highway No. 4 and Highway No. 26. An additional 7.1 km of Highway No. 303 east of Lloydminster were taken over following the completion of reconstruction in the late fall. At year end, the district was scheduled to take over the maintenance of 31.4 km of Grid No. 674 between Scot and Tramping Lake. The Prince Albert District took over the maintenance of 28 km of timber roads in the Dore Lake area effective November 1 which were previously maintained by the district.

Other Activities

Safety improvements included the flattening of approach slopes on Highway No. 17 from Lloydminster to 22 km south and from Lloydminster to 24 km north. In addition, approach slopes were flattened on Highway No. 55 from the east junction with Highway No. 4 to the west junction with Highway No. 4.

Under the recreational area improvements program dust treatment was carried out at Pierce Lake in the Meadow Lake Provincial Park as well as at the Cole Bay Campground.

A total of seven communities participated in Urban Assistance, Airport Assistance and Urban Traffic Safety Programs.

Delineation lights were installed at eight highway intersections.

Summary of Kilometres of Work Accomplished 1986-87

		Grading		Surfacing					
Control Section	Location	Comp.	U.C.	Pvt A	Pvt B	Pvt C	Pvt D	Rehab.	U.C.
1-01-1B	Town Map site at Moosomin	0.01			0.01				
1-02	spot improvements east of Whitewood							0.28	
1-09	Regina bypass							0.70	
1-09-6R	auxilliary curve at Jct. No. 6							0.30	
1-10	west of scale site							0.24	
1-12	Moose Jaw bypass							0.12	
1-13	junction No. 2 (Moose Jaw) west							0.74	
1-15	west of Ernfold							2.60	
1-16	Morse - Herbert							12.56	
1-19	west of Webb - east of Gull Lake	11.60							
2-03-1A	map site at Assiniboia	0.06				0.06			
2-19	in Prince Albert							0.66	
2-19-6L	extra curve at Jct. No. 2 & No. 11	0.83		0.83					
3-01	west of Armit - Erwood	15.90	4.37						
3-02	at Erwood		0.26						
3-04	Prairie River east of Mistatim							6.43	
3-14	east of Aimens - Spiritwood							12.72	
3-15	Spiritwood west							2.16	

Control Section	Location	Grading		Surfacing					
		Comp.	U.C.	Pvt A	Pvt B	Pvt C	Pvt D	Rehab.	U.C.
4-04-70	in Swift Current							2.09	
4-10	south of Biggar							1.80	
5-03	west of Canora - Buchanan							4.94	12.86
16-13	in Melfort							0.62	
16-13-8R	service road south of Jct. No. 3						0.42		
7-07	west of Kindersley - Jct. No. 307							16.27	
7-08	Jct. No. 307 - Flaxcombe							9.00	
8-05-20	Rocanville - Sylvite Potash Mine			14.36					
8-06	Qu'Appelle Valley north Jct. No.22	7.59				17.60			
8-06-1D	Point of Interest at Tantallon access	0.13				0.13			
9-02	south of Carlyle							6.20	
9-03	south Jct. No. 48 - north Jct. No. 48							3.38	
9-03-1A	access to Kenosee water slide	0.44		0.44					
9-03-40	Jct. No. 9 - Village of Kenosee Lake	0.50		0.50					
9-06	Qu'Appelle Valley - east Jct. No. 22							14.52	
9-10	south bound lane in Canora							0.43	
10-06	south of Jct. No. 210 - NE of Balgonie							5.50	
11-13	revisions at Jct. No. 2	0.57		0.57					
12-02	Jct. No. 312 - Petrofka Bridge							16.75	
12-04	Leask grid - jct. No. 3 (Shell Lake)	13.72				20.72			
13-06	Weyburn - Trossachs							2.90	
13-07	east of Forward - west of Jct. No. 6							3.48	
14-16	at Jct. No. 29							0.07	
14-17	at Jct. No. 29							0.06	
16-14	Jct. No. 47 - Insinger							7.18	
16-15	Insinger west							1.06	
16-19	east of Viscount - Jct No. 2							12.12	
16-20	at Jct. No. 2							0.20	
16-29	at Lashburn and Marshall		2.60					2.81	
16-30	Marshall - Lloydminster		14.60					0.20	
17-03	Jct. No. 14 - Jct. Alberta Hwy No. 14			49.97					
17-07	Jct. No. 3 Meridian Bridge	10.69							
17-08	Meridian Bridge north	2.97							
18-05	east of Bromhead access	10.51				7.76			2.75
19-05-1A	boat launch road at Douglas Park						0.11		
21-12	in Kerrobert	0.32		0.32					0.63
21-15	north of Jct. No. 303 - Jct. No. 3	15.50							
23-02	Somme - Carragana							8.40	
23-04	east and north of Arborfield							12.84	
29-01	Jct. No. 14 (Wilkie) - NE 36-41-19-3				22.07			0.10	
29-01-1A	historic site north of Wilkie				0.20				
29-02	NE 36-41-19-3 Jct. 40 (Battleford)				14.66				
31-03	Kerrobert - Luseland	23.90							
31-04	Jct. No. 31 - Denzil						0.15		
32-02	east of Cabri								1.20
32-03	Cabri east of Shackleton								2.36
32-04	Prelate - Leader		2.80						
33-01	Jct.No.47 (Stoughton) - Fillmore							9.47	
33-04	on Arcola Avenue in Regina	0.92		0.92					
35-13	south of Rose Valley - Archerwill	8.66			17.32				
37-02	north of Frenchman River - Shaunavon					32.30			
37-03	in Gull Lake							1.23	
38-02	Perigord - Jct 23 (Chelan)					16.22		4.10	
38-02-1A	in Greenwater Provincial Park						1.70		

Control Section	Location	Grading		Surfacing					
		Comp.	U.C.	Pvt A	Pvt B	Pvt C	Pvt D	Rehab.	U.C.
38-05	Jct. No. 5 (Kuroki) - Jct No. 49	18.62				31.44			
39-05	Weyburn - northwest of MacTaggart							13.10	
41-01	east of Yellow Creek - Jct. No. 20	6.02	6.88						
41-02	Jct. No. 20 - west	13.48							
42-03	Central Butte - Lake Diefenbaker	32.10				32.20			
42-04	Lucky Lake - Jct. No. 342		3.34						
44-02	east of Jct. No. 19 - Jct. No. 19	4.02							
45-02-40	Dunblane - Coteau Beach						1.84		
46-01	Pilot Butte - east of Regina	4.87							4.87
48-02	Wawota - Jct No. 9							6.96	
48-03	east - west of Kipling	1.54		2.16	0.70				
48-04	west of Candiac - Montmartre				8.84				1.78
49-05	Jct. No.38 - Jct No. 35							12.76	
51-02	Dodsland grid - Kerrobert	20.87				20.87			
55-04	Battle Heights - Jct. No. 123	14.68				12.90			
55-07	east of Jct. No. 106							2.76	
55-08	Jct. No. 106 - Jct. No. 120							10.20	
55-10	Canwood - Mattes							17.22	
55-12	N of Big River - S of Jct. No. 924	11.85	3.30			11.85			
55-15	west Jct. No. 4 - west of Rapidview				15.26				
56-01	Jct. old No. 1 - north of Indian Head	1.65		0.20					1.45
56-02	at Katepwa & Sandy Beach	1.62				1.62			
57-01-1B	in Duck Mountain Provincial Park						1.21		
106-02	Big Sandy Access - now Jct. No. 165	1.95							
120-01-10	at Candle Lake						1.64		
155-03	south of La Loche - La Loche						3.00		
210-02	north of Jct. No. 10 - Jct. No. 10							1.30	
220-01-10	in Rowan's Ravine Provinvial Park					3.35			
240-01	north of Cookson - P.A. Provincial Park						4.12		
261-02-1B	in Sask. Landing Provincial Park	1.26				0.69			
303-02	east to west of Big Gully Creek	6.17							
307-02	west of Coleville - Jct. No. 21	17.92				17.92			
312-02	Laird access - jct. No. 12	18.86							
318-01	at Jct. No. 361	0.75							
334-02	west of Corinne - Corinne					10.25			
363-01	Moose Jaw - north of Crestwynd grid	6.30				16.90			
368-02	St. Brieux- Pathlow		7.42						
378-02	Rabbit Lake northeast					8.10			
	TOTALS - DISTRICT 1	107.97	6.14	0.32		104.04	2.10	45.55	4.19
	DISTRICT 2	33.19		4.22	9.55	39.88		54.67	9.07
	DISTRICT 3	50.90	4.63	14.36	17.32	65.39	2.91	53.39	12.86
	DISTRICT 4	38.36	6.88					29.07	
	DISTRICT 5	43.60	10.72	1.40		53.57	6.18	65.61	1.78
	DISTRICT 6	35.33	17.20	49.97	52.19		3.00	3.24	
	PROVINCIAL TOTALS	309.35	45.57	70.27	79.06	262.88	14.19	251.53	27.90

Control Section — A permanent unit of the highway system which becomes the basic reporting unit for construction and maintenance costs, service life characteristics, and various other data.

Grading - Completed (Comp.) — Grading completed within the year being reported.

Grading - Under Construction (U.C.) — The under construction portion of the project which is being carried over to be done in the next construction season.

Rehabilitation — Work such as pavement resurfacing, carried out to restore a roadway to the standard to which it was constructed. This is warranted when maintenance operations are no longer adequate or appropriate. Differs from upgrading in that the design standard is not improved.

Pavement "A", "B", "C", and "D" — Represents different types of surfacing structures.

OIL — Oil treatment. Cold asphalt mix surface treatment of nominal thickness.

Surfacing - Under Construction — The paving portion of the project which is being carried over to the next construction season.

Engineering Division

Grant Hodgins
Minister,
Highways and Transportation

J.R. Sutherland
Deputy Minister

M.F. Clark
Engineering Division

J. Syrnyk
Road Design Branch

B. Martin
Maintenance Branch

J. Palaschuk
Equipment Branch

A. Widger
Geotechnical Branch

G. Heiman
Surfacing Branch

H. Eley
Materials Testing Branch

The Engineering Division is responsible for the development of standards for the design, construction and maintenance of provincial highways. The Division continues to emphasize the thrust for innovation to increase the department's effectiveness in managing and delivering programs.

Major organizational changes occurred within the Division by the amalgamation of two branches. The Materials Testing Branch was amalgamated with the Geotechnical Branch to form a combined Geotechnical and Materials Branch. This change was implemented in June, 1986 and has proven to be a very effective decision.

A major study was implemented to evaluate the potential of adding an emulsified asphalt for use in recycling old asphalt pavements. The study resulted in a specification for this type of product being used by the department.

A major evaluation was conducted on the performance on thin asphalt pavements which are placed directly on new subgrades. This study resulted in modifying a number of department standards which will enhance the performance of these thin pavements.

In co-operation with experts from across Canada, guidelines were developed for cost effective use of products which can be applied to gravel roads reducing the problem of dust with resulting improvements in highway safety.

A major study on heavy vehicle stability characteristics and their impact on pavements was conducted in co-operation with industry and government officials from across Canada. This completed study is being used as a basis for reviewing vehicle weight and dimension regulations across Canada. Greater uniformity in provincial regulations will greatly improve transportation productivity and safety.

Major emphasis has been placed on developing and enhancing information management systems for use by department managers. The design of a pavement management information system is well under way by a consultant which will be of great assistance in managing the department's paved highway system. Enhancements have been developed for the equipment management information system in close consultation with the system users. This has resulted in increased efficiencies in providing data to the system. The system has also been expanded to include budgeting for the department's maintenance repair depots.

Major developments have been made in the utilization of aerial photography for use in engineering design surveys. The department now has the capability to analyse the topography from aerial photographs and develop computer plots for utilization in highway design. This will be a valuable tool in the evaluation of route surveys in difficult terrain.

Road Design Branch

The following are the major responsibilities of the Road Design Branch:

- develop and update design standards
- review geometric and drainage designs
- review highway lighting designs
- prepare and update manuals pertaining to design activities
- provide advice and guidance on all matters pertaining to geometric, culvert and highway lighting designs
- develop standards and policy pertaining to roadside development and to direct roadside development permit operations
- operate the department's air photo library

Manuals

The Metric Hydraulic Manual was developed and distributed this year to department personnel. This manual simplifies the calculation of hydraulic flow through culverts.

In addition, a Roadside Development Manual was prepared and distributed to department personnel. This manual is used as a guide for the control of roadside development adjacent to provincial highways.

Safety

Safety is a very important aspect of geometric design. Accident data is a significant consideration in the development of highway geometric standards

Air Photo Library

There were two contracts for airphoto work in 1986-87. Library staff acquired 2 600 km of photography and prepared 270 mosaic sheets.

We continued the program this year to obtain new photography on our provincial highway system. Many of our existing air photographs are 15 years or older. Current photographs are necessary for highway planning, design and construction.

Development Permits

Approximately 300 development permits were issued and 225 subdivision requests were reviewed.

Computer Development

This past year, additional computer programs for highway design were implemented. The department can now obtain cross sections through ICES COGA Roads from digitized airphoto data. A program was developed to calculate horizontal sight distance. In addition, on-screen graphics are available to the highway designers.

Equipment Branch

Equipment Branch provides administrative, consultative and technical guidance on all issues related to the department's equipment fleet. Major areas of responsibility are:

- develop the annual Equipment Budget
- purchase all equipment and related items
- manage and operate the Department's Equipment Management Information System (EMIS)
- set rental rates for department owned equipment and for equipment used on Saskatchewan Highways and Transportation contracts and projects
- develop policies and procedures related to equipment operations and maintenance
- administer the department's mobile/ radio telephone communications system

- provide technical guidance and expertise on equipment repair and operation
- administer the department's fleet of C.V.A. vehicles.

Equipment Fleet

The department's current fleet consists of 2,906 units, including trucks, tractors, graders, mowers, compactors, sweeper brooms, trailers, camp equipment and heavy construction equipment.

The majority of the equipment is used to maintain the highway system.

Fleet Operation

The cost of operating the department's equipment for the year was $21.4 million. Repairs cost $7.6 million, fuel and other operating costs $5.3 million, ownership costs were $3.2 million and $5.2 million was spent on license and administration.

Equipment Purchases

In 1986-87, $4.5 million was expended on new equipment acquisitions. The current capital cost of Saskatchewan Highways and Transportation equipment fleet is $67.4 million. 117 requisitions were raised to purchase major equipment, support equipment, shop equipment and tools.

Rental Rates

Equipment Branch sets rental rates for equipment that is used on an hourly basis on highway construction projects. These rates are used as a guideline by the construction and roadbuilding industry. The rates are distributed annually to some 300 contractors, equipment dealers, trucking firms, towns, cities and other government departments and agencies.

Rental rates for department owned equipment were calculated on a provincial basis. These rates are set to recover the costs of owning, operating, repairing and administering the department's equipment fleet.

C.V.A. Fleet

All vehicles less than 4 500 kg gross vehicle weight are leased from Central Vehicle Agency. The fleet consists of 150 cars, 10 station wagons, 20 suburbans, 8 vans and 215 trucks. All fleet colored vehicles have a non maintenance lease which means our department is totally responsible for the unit operation. All standard colored vehicles are leased with a maintenance contract.

Mobile Radio/Phone System

The management of the mobile radio/phone network remained virtually static during the year. There was some downsizing in the number of mobile units used.

Equipment Fleet

New engine technology in trucks resulted in a savings of $180,000 in the purchase of medium duty trucks last year.

All department leased and/or owned cars and trucks were equipped with day time running lights.

Equipment Management Information System

The system has been current since December 1984 and is providing management information on a regular basis.

A user's committee was formed in September 1985 to guide the development of the system. This committee has streamlined field input reporting procedures through implementation of an interface with the Maintenance Management System and is developing a shop budgeting system.

Surfacing Branch

The mission of Surfacing Branch is to develop and review surfacing policies, annual rehabilitation programs and central gravel resource information; to provide expert knowledge in pavement design, construction and maintenance (techniques and materials); to provide for an efficient and cost effective management and operation of a multi-model transportation system for the Province of Saskatchewan.

Pavement Management

The pavement management information system (PMIS) design was approved and the consultant is proceeding with the detailed design. The PMIS is the first department system to get data from the corporate data base. The PMIS is projected to be operational in May of 1988.

The annual rehabilitation program was developed for $36 million for 720 kilometres of highway. The priority from new projects to rehabilitation work is to maintain the quality of our existing network.

Standards and Policy

The branch participated in a review of pavement standards and developed a change in the strategy of pavement in Saskatchewan. The pavement staging life was extended which eliminated the stage Pavement B standard. The Pavement C standard was modified to account for weak clay subgrades, to enhance the performance of the Pavement C standard under ban free conditions.

The use of asphalt type and mix design was reviewed in regards to rutting. The mix design criteria were modified due to the findings of a full study.

A field study was completed to develop specification for paving in late fall. This study has produced information to project when compaction of hot mix is achievable in cold weather.

Staff Training

The branch developed a course for Quality Control Measures on Paving Projects. The branch headed development of a course on paving equipment operations that will be open to the consulting industry, contractors and department staff.

Maintenance Branch

The mission of the Maintenance Branch is to develop and review policies, standards and procedures for cost effective maintenance of provincial transportation facilities; to provide expert engineering advice and information regarding maintenance practices and procedures; to provide pavement marking services for provincial highways and airports; and to administer all vehicle weight and dimension legislation for provincial highways including control of overweight and overdimension vehicles.

Program Standards

The department maintained 24 060 kilometres of provincial highways and provincial roads during 1986-87. The system was composed of 9 130 kilometres of staged or full pavement, 1 200 kilometres of light pavement, 8 565 kilometres of oil treatment and 5 165 kilometres of gravel road. The department also maintained 383 kilometres of tourist facility roadways and sites. The highway system consists of 683 kilometres of four lane highways and the two lane highways are divided into 2 777 kilometres of arterial highways, 6 302 kilometres of collector highways, 9 624 kilometres of local highways and 4 672 kilometres of provincial roads.

The approved 1986-87 maintenance budget of $87.2 million represents an increase of 4% over the previous year. This was increased to $88.2 million to allow for maintenance of provincial road extensions in Northern Saskatchewan. The department was able to meet or exceed its objectives for surface maintenance. The Riding Comfort Index on oil treatments ranged around 5.8 throughout the year as compared to the 5.6 objective.

The Maintenance Practice and Procedures Manual had 20 sections revised and two new sections added. The branch carried out 14 special

studies for use by executive management and district managers. This included the development of revised base standards and allotments for the maintenance program and unit cost analyses for various activities including department and private sector comparisons.

The branch head also worked with the Roads and Transportation Association of Canada to develop guidelines for cost effective use of dust palliatives on gravel roads.

Enhancement of the Maintenance Management Information System was continued during the year to improve the quality of the management information. This included completion of the head office reports and revised pavement marking reports.

Pavement Marking

The department striped 23 400 kilometres of centerline and 18 100 kilometres of shoulderline. This was 3 500 kilometres above objective and was 2 047 kilometres above the previous year. A total of 22,650 pavement signs were also marked. Three airports were striped during the year; one by department crews and two by private contractors.

The department initiated a program of providing long life "permanent" markings in high wear areas near urban centres. In 1986 a total of 7 870 metres of stripe was applied. A fourth large high speed pavement marking machine was also introduced during 1986.

Weights and Dimensions

The vehicle weights and dimensions regulations were revised to incorporate several minor administrative changes. During the year the department sent its first brochure on vehicle weights and dimensions on public highways to all rural municipalities, all S.G.I. license issuers and to all permit holders.

During the year a total of 35,636 permits were issued for overweight and overdimension loads. This represented a decrease of 2,993 or 7.7% from the previous year but is 29.9% above the average of the previous five years. The 24,856 permits issued by the Permit Office in Maintenance Branch is the highest number ever issued despite increasing use of blanket or multi-trip permits. The number of permits issued by the districts was 875 which indicates a continuing decline. The number of weight and dimension permits issued by the Central Permit Office dropped to 9,905 compared to 12,718 in 1985-86, 12,604 in 1984-85, 8,041 in 1983-84 and 0 in 1982-83.

During the year the department worked to improve its system of collecting unpaid permit fees. Work also started on a new automated permit system. The Weight and Dimensions Administration Manual had six new sections added and eight existing sections revised. This included changes in the requirements for escort vehicles when moving mobile homes.

During the year the branch head was heavily involved in the RTAC/CCMTA Heavy Vehicle Weight and Dimension Study. The results of this study should serve as the basis for vehicle weight and dimension regulations across Canada in the future. This should lead to more uniform regulations which will improve transportation productivity and reduce transportation costs.

Geotechnical and Materials Branch

Geotechnical Branch and Materials Testing Branch were formally combined on June 6, 1986 to form a new Geotechnical and Materials Branch. The following mission was established for the new branch:

- to provide specialized geotechnical and materials support to Department Executives, Engineering, Operations and Planning and Research Divisions in the areas of policies, standards, specifications, procedures, laboratory testing, field testing and training within allocated annual funds.

The existing staff was re-organized with some staff being assigned new duties in order to carry out the branch's mission.

Standards and Policies

Work continued on many studies related to geotechnical standards and policies. A new select sand specification was developed. A major special study was completed on pavement C construction, design and performance. This study resulted in some major changes in the pavement C policy.

Work recommenced on the Manufactured Materials Manual. New specifications were developed for recycling grade emulsions. The Lime specification was modified to include a penalty clause.

The branch managed and directed the lime research project at the University of Saskatchewan. A subgrade suction research project with the U. of S. in the test track was started.

Consultation Services

Geotechnical and Materials Branch took part in approximately 30 design reviews as well as providing formal comments or recommendations on approximately 25 projects. Branch personnel conducted in excess of 120 job inspections to provide assistance, as well as attending 35 district meetings.

The branch provided technical support, labour and supervision during the installation of the test track structure and instrumentation.

Lab Services

The Department Central Lab conducted more than 13,000 tests to evaluate materials for highway design, construction, maintenance performance and research. Asphalt product samples were tested to check for specification compliance. Lab testing was conducted for the following special studies.

- recycling procedures and recycled mix designs
- pavement C performance
- striping and striping potential
- materials testing for rubber asphalt crack sealants

Forty-five nuclear density meters and four asphalt meters were serviced and calibrated for use on construction projects.

The branch provided 75 portable labs and six coring machines to the districts for quality control testing on construction projects.

Traffic paints were evaluated in order to pre-qualify materials for tendering. Quality control testing was completed on glass beads.

The Central Lab provided all laboratory services for Regina District as well as asphalt mix designs for Swift Current and North Battleford districts. Speciality testing was provided for all districts. Central Lab provided all specialized soils testing for the department.

Central Lab took part in the National Asphalt Mix and Asphalt exchange as well as the Japanese mix exchange in order to ensure accurate testing procedures and results are achieved. A mini mix exchange was conducted with the district labs to check on uniformity of test results.

Site Investigation

Site investigations which included test drilling, soil sampling and soil property testing were completed on a number of small bridge sites as well as potential landslide areas on the Qu'Appelle, Pipestone and Assiniboine Valleys. A detailed investigation was completed on the McCloy Creek crossing on proposed Highway No. 41. Instrumentation installation

and monitoring was continued during construction of the Meridian Bridge and at the Carrot River Bridge on Highway No. 55. Drilling and sampling was completed for the Saskatchewan Water Corporation on the Qu'Appelle Valley using a track mounted drill and on the Luck Lake Project at Diefenbaker Lake using the barge. A total of 3 872 m of test holes were bored.

A joint site investigation research program with the University of Saskatchewan was continued. A draft Site Investigation Manual was developed as a result of this work.

Monitoring of instrumentation and interpretation of data was continued on various sites throughout the province for long term analysis of landslide potential areas. A report covering all slope indicators being monitored was completed.

Surface Condition Testing

Benkelman Beam deflection tests were completed on 2 100 km of pavements resulting in a total of 16 000 lane kilometres of testing. An additional 32 sections were tested for urban centres or research purposes.

Riding quality was assessed on 13 000 km of pavements and five runs on 7 300 km of oil treated surfaces using the car road meters for a total of 50 000 km of testing.

Skid tests were taken on major bridge decks, overpasses and some sections of provincial highways to detect or study slippery conditions for safety concerns.

Bearing strengths of highways were obtained by a dynamic vibratory system for a continuing study by Technical Research Branch.

The branch provided technical support in developing surface condition testing procedures and requirements for PMIS. The PURD was evaluated and modified for data collection.

Staff Training

The branch reacted to the department's technical training needs by increasing its involvement in technical training. A new two day asphalt lab course was developed and presented at two different training sessions at the Central Lab. An in-house test procedure training session was conducted at Central Lab in order to ensure employee familiarity with all tests and ensure staff movement is possible. Central Lab assisted Regina District in their technician training program. The branch took a leading role in developing a Marshall Mix Design and Control course.

The Maintenance Soils Course was updated with courses presented in Tisdale and Rosetown.

Environmental Liaison

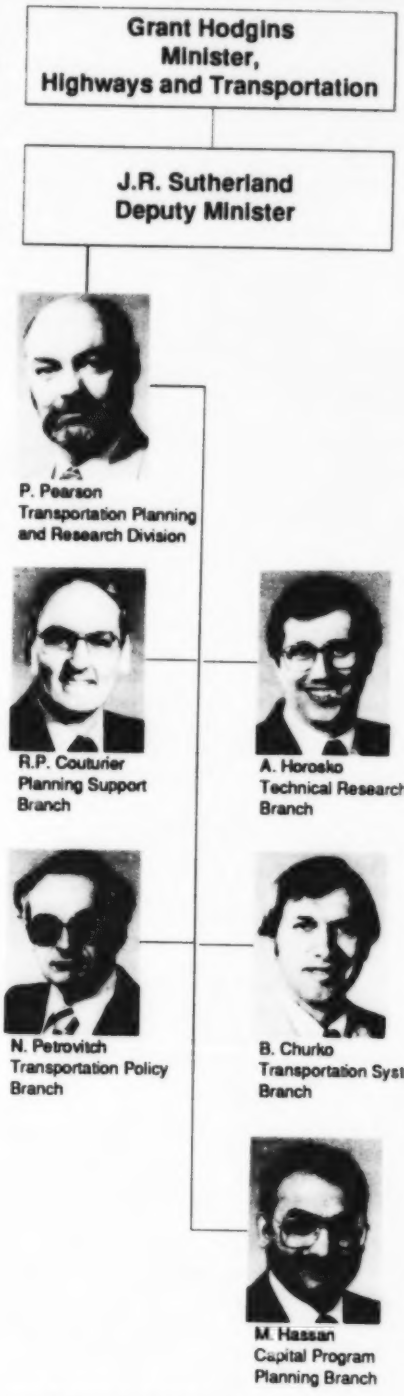
Geotechnical Branch continued its role as the department's official liaison with the Department of Environment. This involves a compilation of the department's capital grading program for submission to the Department of Environment for environmental approval. The long range program was also submitted to obtain classifications for all grading projects. The branch also reviewed and provided comments on environmental legislation or guidelines.

As the official liaison with the Department of Culture and Recreation on heritage resource concerns relating to the capital program, the branch submitted and received approval for the current projects as well as obtained clearance for over 30 projects on the long range program.

Transportation Planning and Research Division

The Transportation Planning and Research Division mandate covers a wide variety of transportation issues as outlined in the mission statement, which is:

- to formulate policies and programs for the purpose of developing improved transportation systems for the province and to plan for a safe, efficient integrated multi-modal transportation system
- to prepare initiatives, interventions and responses to further the best interests of Saskatchewan transportation users
- to provide information and specialized technical assistance concerning transportation to other departments and agencies of the provincial government, and to communities, carriers and transportation users within the province. This includes the development, implementation and monitoring of policies and practices with the respect to the movement of dangerous goods by road
- to arrange for the co-ordination and provision of the technical research required by the department



During 1986-87, the division developed and presented a major brief on the proposed National Transportation Act to the House of Commons Standing Committee on Transportation. Additionally, work was initiated to improve the rail branch line abandonment process in co-operation with the other three Western provinces. Division personnel were involved in developing a submission and acting as expert witnesses for the 'Variable Rate Hearings' conducted by the Canadian Transport Commission.

A Physical Distribution and Transportation Advisory Program developed during 1985-86 was introduced to the Saskatchewan shipping community. A number of seminars were provided for shippers, government agencies and other interested parties throughout the province. As well, a comprehensive physical distribution manual was prepared and will be available for distribution in 1987-88.

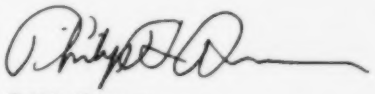
In co-operation with a major trucking company and the University of Michigan, demonstration projects were undertaken to test the application of modified hitching devices in improving the stability of combination trailer units.

A nine-axle petroleum tanker B-train with a staggered axle concept was

designed and constructed in co-operation with industry. The new petroleum tanker currently operating on a two year experimental basis should improve vehicle productivity and extend the life of pavement structures.

An automated weigh-in-motion scale and a piezoelectric vehicle classifier system were installed on Highway No. 1 near Regina. As well, permanent axle sensors and an automatic vehicle identification interrogator were installed on Highway No. 16 near the Borden bridge.

Division staff hosted and supervised a visiting researcher from the People's Republic of China. The visiting engineer studying department research and materials methods, is sponsored by the Canada/China Human Development Training Program.



P.M.L. Pearson
Executive Director
Transportation Planning and Research Division

Planning Support Branch

The mission of Planning Support Branch is to facilitate the provision and maintenance of an effective and efficient transportation system by:

- the provision of transportation demand data and related information
- the planning and facilitating of programs for northern transportation and special transportation issues
- the provision of intradepartmental, interdepartmental, and intergovernmental liaison and co-ordination of statutory and regulatory matters affecting the department
- the provision of administrative support services for the Division in budgeting control, drafting, library services and other assigned areas.

The major activities in which Planning Support Branch was involved during the year were:

Traffic Analyses

The traffic analysis function, in addition to routine data collection, encompasses special traffic studies, research projects, and provides specialist advice and assistance on matters relating to traffic engineering. Specific activities undertaken involved obtaining traffic volumes on the provincial highway system. Travel on the provincial highway system increased by 4.0% from1985 to1986.

The document Travel on Saskatchewan Highways 1986 was produced. This biennial publication contains traffic counts on the provincial highway system along with various trends on factors associated with traffic generation.

A Travel Demand Study was completed during the year. The report provides an overview of passenger and commodity movement by all modes in Saskatchewan. The information is useful for planning and policy purposes. A summary of modal distribution for passenger and commodity movement is:

Percent Distribution

	Passenger Kilometres	Tonnes
Auto	66.8	-
Bus	30.4	0.1
Truck	-	34.5
Rail	0.7	44.2
Air	2.0	10.3
Marine	0.1	0.1
Pipeline	-	10.8
TOTAL	**100**	**100**

The study also provides information on modal shifts and traffic growth in various sectors.

A Truck Axle Weight and Commodity Study examined truck traffic at permanent weigh scales and other locations. General findings showed that the percentage of truck train combinations is increasing along with the average payload per truck.

A general speed study was conducted on provincial highways during the year. The average daylight speed for all vehicles was determined to be 101.1 kilometres per hour. This is an increase in 0.8 kilometres per hour from1983.

To improve co-ordination of planning, constructing and maintaining permanent weigh scales on provincial highways, a system was developed with the co-operation of various branches. This system will clearly indicate appropriate actions and decisions to be taken. Loadometer sites are also included in the system.

The hauling of timber by trucks in the province was studied and a report prepared showing the route and quantities hauled by all companies. In addition, the type of truck and the weights hauled were also examined.

Technical papers prepared and presented during 1986 were 'A Rationale for Increasing Truck Gross and Axle Weights', presented at the Canadian Transportation Research Forum, 'Effect of a 60 Kilometre Per Hour Speed Limit When Passing Highway Workers', presented at WACHO, and 'Estimation of Design Hour Volumes from Seasonal Traffic Counts', at the Canadian Society of Civil Engineering Conference.

Northern Transportation

The Lake Athabasca Region Transportation Study was completed. The study emphasized the short term importance of the existing barge system on Lake Athabasca. A supplementary study which examined the demand and level of service of the barge system was also conducted.

In order to assist the licensed barge operator on Lake Athabasca with the purchase of a tug for the services on the lake, the branch facilitated a loan from SEDCO.

A joint study with Alberta Transportation was conducted on a proposal to construct a highway from La Loche to Fort McMurray, Alberta. The study primarily examined the economic feasibility in addition to the construction costs and general location.

A highway system study was initiated to examine the implications of serving the proposed Cigar Lake uranium mine with alternate routes. The study will review construction, maintenance and road user costs along with non-highway impacts.

Planning input was provided on proposed highway extensions to communities and resource developments, and recommendations were provided for transportation capital expenditures which included road, airfields and dock facilities.

Transportation of Dangerous Goods

The branch continued with the program of training various peace officers as dangerous goods inspectors. Continual liaison was maintained with local governments, industry and the general public on the application and interpretation of the regulations.

A brochure aimed at the agricultural community was produced and distributed to various government offices around the province. The brochure reviewed the commonly used substances which are affected by the transportation of dangerous goods regulations. Guidance was given on procedures to be used to conform to the regulations.

With the co-operation of Transport Canada and the other provinces a memorandum of understanding which enhances co-operation and liaison between governments was prepared. This document should be signed shortly.

A bi-lateral federal-provincial administrative agreement which specifies the roles of Canada and Saskatchewan on the transportation of dangerous goods program is being drafted and will be signed by respective Ministers.

On March 1, 1987 the continued responsibility for the transportation of dangerous goods program was transferred to the Regulation and Traffic Safety Division.

Interdepartmental Liaison

Liaison was maintained with federal and provincial departments on various transportation matters. Specific areas were departmental requirements for abandoned railway rights-of-way, assessment of Treaty Indian land

entitlements, co-ordination of planning provincial airport facilities, and the integration of northern transportation planning with northern economic development initiatives. In addition comprehensive data was obtained for airports in the province and provided to the Central Survey and Mapping Agency for use in the preparation of a new Saskatchewan Air Facilities Map.

Statutes and Regulations

The branch has the responsibility of co-ordinating proposed legislation, regulations and cabinet agenda items. During the course of the year activity involved a new Saskatchewan Railway Act and Highways and Transportation Act amendments. Proposals for amendments to The Rural Municipality Act were also reviewed and transmitted to Saskatchewan Rural Development.

Technical Research Branch

The mission of the branch is:

- to facilitate and coordinate technical research and development activities in support of Saskatchewan Highways and Transportation priorities.

Specific objectives of the branch are:

- to lead and coordinate technical research and development directed at improving Saskatchewan's highways and other provincial transportation facilities
- to make recommendations and/or provide assistance in implementing and developing new equipment, methods, materials or procedures
- to improve transportation safety to reduce the incidence and severity of accidents
- to research and support development of Saskatchewan materials and manufactured products for application in the transport sector
- to develop and utilize the pavement test track for accelerated testing and to provide fundamental knowledge of highway materials behaviour
- to encourage, monitor and participate in technical research activities involving other agencies and organizations
- to support technology transfer by disseminating research and development information and providing a forum for technical exchange.

Materials Research

Materials research accomplishments included the continuation of eight long term research projects, the establishment of one new project, assistance with the test track upgrading project and the preparation of several technical reports and documents.

Data collection and performance evaluation continued on long term research into:

- the performance of variable overlay thickness
- the performance of staged and thin pavements
- the performance of sulphur asphalt test sections
- the performance of rubberized crack sealants
- the performance of seal coats utilizing high float asphalts
- the performance of ash from coal-fired power stations as a base course material
- the performance of various thin overlays
- asphalt hardening.

A new project, including a field test section, was established to develop a procedure for hot recycling of old oil treatments and other cold mixes using currently available emulsified and cutback asphalts.

Terms of reference were prepared, and consultants commissioned and monitored for the following projects:

- lime modification of cohesive clays
- thin overlay crack mapping
- high float seal coat performance crack mapping
- hot recycling of cold mixes
- determining moisture and density retention for thin pavement structures
- test methods for measuring pavement parameters
- test track experiment.

Transportation Research

Transportation research accomplishments included the continuation of three projects, the establishment of three new projects and the provision of specialist advice and services.

Research activity continued on heavy vehicle accidents and roadway marking and delineation projects. The culvert hydraulics project was expanded to include an analysis on framed timber culvert hydraulics.

Two new projects were undertaken under the "Innovative Traffic Monitoring Technology Program". The projects included the installation of various axle sensors and an automatic vehicle identification (AVI) interrogator on Highway No. 16 near Borden, Saskatchewan and the installation of a weigh-in-motion and piezoelectric vehicle classifier system on Highway No. 1 near Regina. The branch was also involved with the development, installation and monitoring of a pavement marking data acquisition

system and preliminary work for a research and development undertaking to improve the Bridge Evaluation Model of CSA standard CAN3-S6-M78.

Specialist advice and services were provided on matters pertaining to traffic safety, roadway lighting, safety barriers, hydraulics, roadway geometrics and videologging. Proposals were submitted for accident countermeasures in relation to:

- utility pole collisions
- rural mailbox hazards.

Test Track

Test Track activity included the continuation of the upgrading program and the construction of a test soil structure.

Accomplishments in the upgrading project include the development of a telemetry system to transfer data from the rotating gantry to the computer, reprototyping and testing of the soil strain electronics, modification to the wheel strut and fabrication of a safety restraint system for the gantry.

A test structure with a pavement C surface over a till subgrade and a clay and select sand subgrade was designed and constructed to determine construction techniques and special equipment needs and to provide a test structure for next year's program.

Technology Transfer

Branch staff participated in a number of activities to disseminate research information and to keep abreast of external research activity. Activities included:

- organizing technical presentations on the use of lime in highway construction, the heavy vehicle accident study and the Strategic Highway Research program and the Canadian Strategic Highway Research program;

- preparing directly or supervising the preparation of reports by consultants on the following topics:

  - deflection bowl analysis CS 15-04
  - evaluation of data from the sulphur extended asphalt test section CS 15-04
  - CS 2-09 rutting analysis of a full depth asphalt mix
  - interim report on reflective cracking through thin overlays on CS 6-08
  - hot recycling of cold mixes;
  - interim data report on moisture and density changes under thin pavements
  - literature search and the review phase of the lime modified clay research program
  - crack monitoring on high float seal coats on CS 1-14, 9-03, 5-03, 3-06, 16-20 and 17-05
  - an interim report on strain gauge testing.

- preparing technical bulletins on the photographic recording of pavement cracks and the correlation of soil density and moisture content determined by nuclear and laboratory measures

- providing departmental representation to and participating in research projects of the Council on Highway and Transportation Research and Development and the Canadian-Strategic Highway Research Program

- providing Roads and Transportation Association of Canada representation to the American Association of State Highway and Transportation Officials Select Committee on Research

- participating in conferences, technical societies, Roads and Transportation Association of Canada committees and subcommittees and the Government Specification Board Committee on Road Materials.

Special Activities

The branch hosted and supervised a visiting researcher from the Chongqing Highway Research Institute in the People's Republic of China. The visiting researcher studied departmental research and materials methods and was hosted under the Canada/China Human Development Training Program.

Branch staff participated as part of the management team for the Rural Transportation Development Planning Study.

Transportation Policy Branch

The mission of the branch is threefold:

- to formulate transportation policies for the purpose of developing improved transportation systems and services in support of the economic and social development of Saskatchewan
- to provide information and expertise regarding extra-provincial legislation and regulations and intergovernmental transportation relations
- to consult with and provide information and assistance to other government departments and agencies, to Saskatchewan communities and to transportation users and carriers.

During the 1986-87 fiscal year the branch maintained liaison with federal and other provincial and private sector agencies dealing with transportation, developed a Physical Distribution and Transportation Advisory Manual and prepared several provincial government submissions to the federal government. The branch was also involved in several major activities discussed below.

Air

The branch is responsible for policy areas intended to influence and improve the level and quality of commercial aviation services and infrastructure affecting Saskatchewan.

Staff continually monitor and assess scheduled air services to, from and within Saskatchewan. This also includes the review of and in some cases the development of interventions concerning air carrier applications before the Air Transport Committee of the Canadian Transport Commission.

Branch staff represent the province on the Community Airport Consultative Committee for both Regina and Saskatoon as well as providing provincial representation to the Roads and Transport Association of Canada, the Aviation Management Committee and the Air Transport Association of Canada.

During 1986-87 branch staff were involved in the following major air policy activities:

- organized and held the Regina Air Conference to coincide with the opening of Regina's new airport
- developed the air component of the province's submission on the National Transportation Act, 1986
- prepared the province's response to the Federal Airport Task Force report concerning airport management options
- reviewed and provided comments to the Canadian Transport Commission where necessary concerning air carrier applications and proposed changes to the air carrier regulations
- participated in the development of intraprovincial, interprovincial and interstate air committees concerning improved transborder air services between Canada and the U.S.

Marine

The province continued to provide advice and input to the Federal Minister of Transport on the planning and development of Canada's ports which impact on Saskatchewan. This is accomplished through the membership of the branch on the Western Regional Advisory Council dealing with ports in British Columbia, the Central Regional Advisory Council dealing with ports in Ontario and the Port Churchill Development Board.

The department continued to support the Port of Churchill Development Board and staff attended board meetings. The board is jointly sponsored by the three prairie provinces and its objective is to increase utilization of the Port of Churchill.

Rail

Canadian Transport Commission Hearings:

The Canadian Transport Commission held public hearings in Regina on March 24 and 25 and in Saskatoon on March 26 and 27 in response to a CN Rail application for lower rates including 27 points in Saskatchewan. Branch staff prepared the province's submission and attended the hearing as technical witnesses.

Branch Lines

Two Canadian Transport Commission public hearings were held in Saskatchewan during the 1985-86 fiscal year. The first was held at Cando on August 19, 1986 concerning the Porter Subdivision between Oban Junction and Cando and the second at Corning August 21, 1986 concerning the Corning Subdivision between Peebles and Corning. The results of these hearings were that rail abandonment has been deferred and Committees have been formed at each location to study and report alternative transportation options.

The following tables provide information on the current status of Saskatchewan branch lines not protected by Federal Branch Line Prohibition Orders.

Saskatchewan lines abandoned pursuant to Canadian Transport Commission's Orders in the period April 1, 1986 to March 31, 1987.

Subdivision	Miles	Point to Point	Date Abandoned
CN Amiens	20.4	Shell Lake to Spiritwood	Aug. 31, 1986
CN Dodsland	51.2	Biggar to Dodsland	Dec. 23, 1986

Lines that have been ordered abandoned by the Canadian Transport Commission effective abandonment date currently frozen.

Subdivision	Miles	Point to Point
CN Acadia Valley	23.7	Eyre Junction to Acadia Valley, Alberta
CN Avonlea	21.6	Avonlea to Parry
CP Furness	17.5	Epping to Paradise Valley, Alberta

Lines that have been ordered retained by the Canadian Transport Commission subject to further review no later than five years from the date of the order.

Subdivision	Miles	Point to Point	Date of Review
CN Chelan	13.0	Reserve to Weeks	Before September, 1988
CP Colony	24.0	Rockglen to Killdeer	Before November, 1987
*CN Corning	14.4	Peebles to Corning	Before August, 1991
CN Erwood	49.2	Baden, Manitoba to Hudson Bay, Sask.	Before June, 1989
CP Fife Lake	17.7	Coronach to Big Beaver	Before June, 1987
*CN Porter	18.0	Oban Junction to Cando	Before August 1991

* Canadian Transport Commission hearings held in Fiscal Year 1986-87.

Rail Passenger Service

The branch continued its efforts to influence and promote safe, modern and efficient rail passenger service for Saskatchewan.

Branch staff prepared the province's response to the National Rail Passenger Transportation Act which is to provide a mandate for VIA Rail.

Grain Handling and Transportation

The branch produced its fifth annual report which monitors and assesses the performance of the grain handling and transportation system.

Western Grain Transportation Act Review

The Grain Transportation Agency released their report on the review of the Western Grain Transportation Act

in June, 1986. The branch reviewed the recommendations of the report.

National Transportation Act Review

The branch prepared an extensive Saskatchewan government submission on Bill C-18, the National Transportation Act, 1986. Branch staff appeared before the public hearings held by the Standing Committee on Transport to present the submission and answer questions.

Physical Distribution and Transportation Advisory Program

This program was developed during 1985-86 to provide a center of expertise and up to date information regarding goods distribution into, within and out of Saskatchewan. The objective is to reduce costs to Saskatchewan shippers, receivers and carriers. The goals of the program are to assist Saskatchewan businesses in maximizing their efficiency and profitability and to enhance the development of new domestic, export and import markets through utilization of physical distribution management techniques.

During the current fiscal year branch staff attained membership in the Chartered Institute of Transport, the Canadian International Freight Forwarders Association, the International Cargo Handling Co-ordination Association, the Canadian Association of Physical Distribution Managers, and the Electronic Data Interchange Council of Canada.

A major undertaking this year has been to prepare a comprehensive Physical Distribution and Transportation Manual. This document will be available in the 1987-88 fiscal year.

Transportation Systems Branch

The mission of the branch is to develop and recommend policies, administer programs, and provide specialized technical assistance leading to improvements in cost-effectiveness, safety and adequacy of surface transportation systems.

Rail Section

Regina Rail Relocation
The section continued to provide costing and technical advice to the Regina Rail Relocation Project up to and during the hearing before the Canadian Transport Commission (CTC) that commenced November 3, 1986 and is continuing. A decision is expected later in 1987.

Burden Study
For many years the province and its major shippers suspected that the spread between rail freight rates charged and the cost of moving Saskatchewan products far exceeded the national average.

The Rail Section initiated a study of costs and revenues for rail shipments originating or terminating in Saskatchewan. The results will be used to monitor the effects of the new National Transportation Act now being considered by parliament. The section intends to obtain the necessary data from the federal government, and Saskatchewan's major shippers.

Road/Railer Demonstration Project
The branch is actively promoting a demonstration road/railer project for the movement of grain off low density branch lines as an alternative to conventional rail. The lines selected for the demonstration are the Colony and Avonlea Subdivisions. Cost savings over conventional rail are anticipated to be substantial. Negotiations are underway with the Minister of Transport to implement the project.

Branch Line Alternative Study Committee
Abandonment hearings were held on the Porter and Corning Subdivisions following which decisions were made to retain the lines for a period subject to review in five years. A committee on each line was established to study alternatives to conventional rail service having representation by local producers, grain companies, railway, the Grain Transportation Agency and the Transportation Systems Branch of DHT and chaired by the CTC. Both committees are continuing to assess available alternatives.

Cabooseless Trains
Consistent with Saskatchewan's continuing concern with the proposal of the railways to operate cabooseless trains and its stated position that safe rail operations is paramount to efficiency, a written brief was filed with the RTC. A decision by the CTC is pending.

Railway Costing Review
Under the Western Grain Transportation Act the federal government undertook to review railway costs associated with moving grain. The Section made several submissions on rail costing methodologies to this review including a submission on the railway cost of capital for the movement of grain. The review resulted in a reduction of producer freight costs by some $25 million.

Branch Line Rationalization Process
The new legislation (NTA) broadens the base for options in dealing with uneconomic branch lines (excluding grain dependent lines). It, however, fails to establish adequate criteria necessary to meet requirements for rationalizing prairie branch lines. The Rail Section is co-operating with officials in other provinces to develop more suitable guidelines.

General Consultative Services
The section continues to provide information and consultative services by responding to new and revised federal legislation and queries from provincial and federal groups, industry and the general public.

Road Transportation Section

Bulk Commodity & Timber Transportation Policy
The Road Systems Section staff negotiated several new agreements with shippers regarding industrial truck hauls pursuant to the terms and conditions of these policies. These included agreements with PCS Mining, Wellings Construction, Saskatchewan Forest Products, Meadow Lake Sawmill, and Weyerhaeuser Canada as well as a number of new letter agreements covering road fees and vehicle configurations

pursuant to other existing agreements. The staff continued to administer all of the industrial truck haul agreements.

Overlength Vehicle Program
Staff proceeded to test the feasibility of operating overlength vehicles on the two-lane highway system on a night time only basis. An evaluation of the test is underway and a report is being prepared.

Overdimension Vehicle Impact Study
Staff initiated a study to determine the impact on the travelling public associated with vehicles that exceed current legal length and width regulations. Phase I of this study, a literature review is completed. Phase II will be initiated in the 87/88 fiscal year.

Petrofka Bridge Traffic Control System
The Road Systems Section in conjunction with Trimac Transportation Services Ltd. and Key Lake Mining Corporation implemented a manual traffic control system on the Petrofka Bridge that has enabled these companies to use more efficient vehicles for hauling processing material to Key Lake without making costly bridge upgrading expenditures. The Road Systems Section has designed and is installing an automated traffic control system in the upcoming fiscal year.

Aggregate Transportation Policy
Staff have entered into several agreements with R.M.'s enabling them to obtain permits for crossing provincial highways while hauling gravel at weights in excess of legal limits. The program is ongoing and will remain accessible to all R.M.'s.

Timber Vehicle Study
The Department issues overweight permits for vehicles engaged in hauling raw forest products. Some of the trailers being used for this activity were equipped with load carrying apparatus that wasn't load rated. In the interests of highway safety the Road Section, in conjunction with trailer manufacturers and timber companies, completed a study with the Saskatchewan Research Council which involved field tests and structure/component evaluation of vehicles used for transporting raw forest products.

Trailer Load Ratings
In the interests of highway safety the Department has initiated a policy that controls the weight a carrier can obtain for hauling raw forest products under permit in accordance with the vehicle manufacturers load ratings. Some Saskatchewan manufacturers did not have their products load rated. Staff from the branch assisted some of these companies to obtain load ratings for their trailers.

Transportation Technology Development Program
The Road Systems Section administered the Transportation Technology Development Program which is designed to encourage the private sector to pursue new technologies for bulk hauls. These technologies will improve productivity and safety while increasing road life.

The following projects were undertaken pursuant to this policy:

Staggered Axle Suspension Asphalt Impact Study
A procedure was developed for analysing and determining the equivalent loading for staggered axle suspensions. This new concept will not only improve vehicle productivity but will also extend the life of road structures.
During 1985/86 a procedure was developed for analysing the equivalent loading for staggered axle suspensions. In the current year three vehicles, incorporating this new suspension, a nine axle B-train and a two quad axle logging trailer, were partially funded by the Department and placed into service on a two year experimental basis.

Equipment Testing and Evaluation
The Road Section, in conjunction with Trimac Transportation Services and the University of Michigan Transportation Research Institute, has undertaken two demonstration projects to test the feasibility of using a controlled steering style "B" dolly and a linked articulation arm in Saskatchewan commerical truck transport.

New Equipment Design Studies
The Road Section, in conjunction with Westank Willock Industries, have initiated a study to re-design the axle centering device on Westank's western turntable style "B" dolly. This design study will be completed in 1987/88.

Capital Program Planning Branch

The mission of the branch is:

- to identify and assess present and future demands for provincial highways, provincial and municipal airports, urban transportation assistance and rural transit assistance in Saskatchewan
- to develop, monitor and evaluate strategic and short-range responses to these demands in terms of capital programs.

Major Activities

Capital Programming

The proposed five-year construction program was reviewed and developed for the period 1987 to 1991. The recommended 1987-88 capital program and budget were compiled; this activity was particularly prolonged and time-consuming this year, due to Treasury Board Division's requests for Budget Strategy Papers requiring numerous budget levels to be considered in response to government-wide review of all programs.

Development of the capital program and budget involves a great deal of background work, consultation and analyses. These activities involved, as in previous years, extensive liaison with Operations Division and its three branches and six districts, and with most branches of Engineering Division.

Further improvements were made in the capability and efficiency of the computer programming used in developing the five-year construction program.

A very special development was added to the programming activity this year. This was an offer by the Federal Government to share the costs of a capital program on the Yellowhead Highway, as noted elsewhere on this page.

The Federal-Provincial Yellowhead Highway Improvement Program

After many years of urging by the Western Provinces and the Yellowhead Highway Association, Transport Canada in September 1986 offered to enter a three-year $50 million, 50-50 cost-shared program with the four Western Provinces respecting capital improvements to the Yellowhead Highway, to commence in 1987-88.

The Capital Program Planning Branch was extensively involved in developing the proposed three-year program for the Saskatchewan portion of the Yellowhead Highway and in drafting the proposed Canada-Saskatchewan Agreement.

Pavement Management Information System (PMIS)

The pavement management information system being developed by the Department will evaluate reconstruction as well as rehabilitation strategies for the highway system. This branch is co-chairing the steering committee with Surfacing Branch and is actively involved on the working committee. Areas of PMIS in which the branch is most actively involved are reconstruction program simulation and road user costs.

During 1986-87, Phase I of PMIS, consisting of conceptual design, was completed. Phase II - detailed design - is expected to be completed in 1988.

Programming and Planning Studies

The major studies conducted during 1986-87 were:

- review of selected aspects of the Rural Transportation Assistance Policy (RTAP)
- study of the long-range capital improvement needs of access roads to new provincial parks
- review of long-range requirements for urban transportation assistance with particular reference to the Yellowhead Highway routes through Saskatoon and Yorkton
- discussion paper on "Passenger Transport and its Impact on Inter-Community Co-operation" prepared for and presented at the Saskatchewan Committee on Rural Area Development (SCRAD) conference in June 1986.

Urban Transportation Planning

Professional engineering input was provided on a wide range of urban transportation issues confronting the Department. Technical assistance was provided on cost shared studies such as the Circle Drive Functional Planning Study in Saskatoon, the Yorkton Transportation Study, and the Moose Jaw Transportation Update Study. Requests for official highway route designations were reviewed and evaluated for locations such as Territorial Drive in North Battleford, Marquis Road in Prince Albert, and York Road in Yorkton. In addition, recommendations were made on various urban transportation issues such as planning for Highway 17 through Lloydminster, the interchange of Highway 2 over 3 in Prince Albert and an at-grade railway crossing at Souris Avenue in Estevan.

Grid Road Takeover Policy

Since May 1, 1984 the Department has implemented a Grid Road Takeover Policy which stipulates minimum criteria that must be met before a rural municipal road would be considered by the Department for inclusion into the provincial highway system. During 1986-87, forty-four grid road takeover requests were evaluated with respect to this policy. Also, various scenarios for possible changes to the policy were developed as part of the Department's comprehensive transportation plan.

Inventories and Statistics

The following inventories for which the branch is responsible were updated: highway inventory, inventory of primary and secondary community airports and highway-railway grade crossing inventory.

The branch also compiled the annual highway length and expenditure statistics for Statistics Canada and the Roads and Transportation Association of Canada.

Professional Publications

The branch staff were involved as principal or co-authors in the following publications during 1986-87:

1. Sharma, S., Hassan, M.U., et al. "Road Classification According to Driver Population". Transportation Research record No. 1090, Transportation Research Board, Washington, D.C., 1986.

2. Hassan, M.U. and Heiman, G.H. "Economics and Performance of Thin Asphalt Pavements for Low Volume Roads". Transportation Forum, Vol. 2, No. 4, 1986.

3. Hassan, M.U., Moses, R. and Belliveau, D.A. "Development of Saskatchewan's Capital Program and Budget Control System". Proceedings of the Roads and Transportation Association of Canada Conference, 1986.

4. Wyatt, J.J., Hassan, M.U., and Couturier, R.P. "A Rationale for Increasing Truck Gross and Axle Weights". Proceedings of the Canadian Transportation Research Forum Conference, 1986.

5. Sharma, S., Hassan, M.U. and Lingras, P. "A Note on the Driver Population Factor in the New U.S. Highway Capacity Manual". Proceedings of the Canadian Society of Civil Engineers Conference, Toronto, 1986.

Technical and Specialist Services

A significant proportion of staff resources was utilized to provide specialist advice and assistance to senior management, other units of the department and extra-department units on matters related to highway planning, location and design standards, airport planning and classification, urban transportation planning, and policies related to capital programs. Examples of such activities include:

- preparation of briefs, letters and background papers pertaining to the Saskatchewan Association of Rural Municipalities, Saskatchewan Urban Municipalities Association, Yellowhead Highway Association, Saskatchewan Roadbuilders, urban and rural municipalities, members of the public, and federal and provincial governments;

- representation on intra and extra-department committees, such as the "Federal/Provincial/Territorial Committee for Disabled Travellers" which is developing ways to improve road transportation for the disabled.

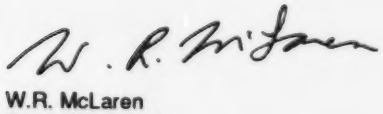
Regulation and Traffic Safety Division

The mandate of the division is to promote legal, safe and economic operations concerning commercial and private vehicles within the province. This mandate is now met within two working units, namely the Transport Services Branch and the Highway Traffic Board Services Branch. In July, responsibility for the activities of the Traffic Safety Services Branch together with 65 employees were transferred to Saskatchewan Government Insurance.

The division performs support functions for the Highway Traffic Board by developing policy options for possible implementation, administering the daily functioning of the board, and by requesting or implementing board decisions.

Regulatory initiatives commenced in 1985 continued at an accelerated rate this year. Federal legislation was introduced following consultation in which the division participated. Major changes were made to the Bill following representations made to both the Parliamentary Committee and the Federal Minister.

With the relaxation of economic regulation, concern for the maintenance of highway safety has increased. In co-operation with other provinces and the Federal Government, the division has participated in the development of a National Safety Code. Critical elements of the Code will be in place when the federal legislation is implemented in 1988.



W.R. McLaren
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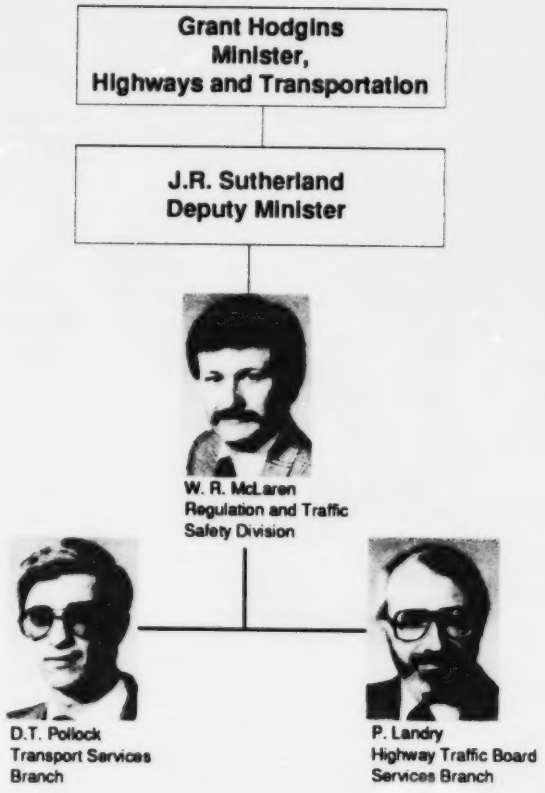
Regulation and Traffic Safety Division



Highway Traffic Board Services Branch

The Highway Traffic Board Services Branch is responsible for legislation and regulations co-ordination, processing applications for restricted licences, and administrative duties for the Regulation and Traffic Safety Division.

Fiscal year 1986-87 saw a major legislative re-organization of traffic legislation. Responsibility for policy and administration of the delivery system for driver's licences and vehicle certificates of registration was transferred to Saskatchewan Government Insurance. The Highway Traffic Board retained responsibility for rules of the road, economic regulation of certain carriers, and determining who is required to be licensed or have a vehicle registered in order to operate on highways in the province.

The branch co-ordinated Highway Traffic Board input into The Highway Traffic Act, The Motor Carrier Act, and The Vehicle Administration Act. In addition, it also developed regulations under The Highway Traffic Act and The Motor Carrier Act.

As of July 1, 1986, the branch took over the responsibility for processing applications for restricted licences. By March 31, 1987, a total of 57 applications had been processed to the point where hearings were held, of which 37 applicants had their licences returned to them with restrictions.

Also, as of July 1, 1986, the branch took over the responsibility for processing appeals from discretionary decisions made by Saskatchewan Government Insurance under the provisions of The Vehicle Administration Act. An example of such a decision is the suspension of a driver's licence for medical reasons after a hearing.

The branch continued to process invoices received by the division and handled other administrative matters such as reception of mail, office equipment inventory, and processing expense statements for members of the Highway Traffic Board. As of the date of the legislation re-organization, the branch no longer processed the receiving of cheques and money orders for driving records or accident reports.

Transport Services Branch

The mission of this branch is to facilitate the development of an adequate, safe and efficient motor carrier industry that adheres to the principles of public service protection. This is accomplished through two working units, the Transport Regulation Section and the Transport Compliance Sections.

In fulfilling its mandate, the branch has the following objectives:

- ensuring that the necessary motor carrier services are available so that the reasonable economic and social requirements of most people are satisfied through accessibility of service, frequency of service, reliability of service and quality of service
- promoting efficient transport services that encourage the optimal allocation of transport resources
- promoting equitable transport services that allows for the delivery throughout the province of similar levels of service at similar prices
- promoting the development of a safe transport system that operates with minimal loss of life, injury, damage to property, and minimum social costs through safely operated vehicles, properly maintained vehicles and protection from dangerous commodities.

This branch oversees the development of policy and recommendations for the board with respect to the degree of regulation that is appropriate for the motor carrier industry.

The branch is responsible for the development and delivery of programs that, process operating authority applications and maintain carrier records; provide carriers with a 24-hour permit service; review carrier fitness on an ongoing basis; establish policy and provide information on vehicle registration requirements; develop conditions of carriage and rate regulations; answer shipper, carrier and public enquiries; and provide administrative support for the board.

The branch is responsible for the enforcement of, and compliance with, the laws and regulations governing the movement of goods and people on provincial roads. To this end, the Highway Transport Patrol and investigation responsibilities include vehicle weight and dimension, operating authorities and registration, vehicle and driver safety. There is also major input into the development of statutes and regulations.

Transport Regulation Section

The various sectors of the Saskatchewan motor carrier industry are subject to varying degrees of regulation. This regulation, economic and non-economic is designed to ensure adequate freight and passenger service to Saskatchewan residents and includes:

- prescribing service levels
- controlling entry into the market with respect to issuance of operating authorities and permits
- analyzing carrier financial and operating costs and recommending changes in the rate structures
- establishing the conditions of carriage under which carriers are allowed to operate
- reviewing carrier compliance records to ensure acceptable operating standards are maintained.

Operating Authorities

Operating authority administration involves processing motor carrier applications for new authorities, providing administrative support to the public hearing process, monitoring carriers for fitness, and instituting disciplinary action. As well, a consumer relations function provides information services regarding the responsibilities and services provided by for-hire carriers.

This fiscal year marked a major turning point in regulatory reform. In accordance with the Memorandum of Understanding agreed to by Provincial and Federal Ministers of Transportation, the Highway Traffic Board introduced early in the fiscal year new regulatory policies and procedures called "Reverse Onus" and "Ease of Entry".

Previously, the onus on those applying for operating authority was placed on the applicant to show a public need for their service. With the reverse onus test now in effect, the burden of proof has shifted to those who object to an application. In addition, the ease of entry list of 32 commodity groups has become available to carriers who demonstrate adequate fitness, that is, they can satisfy insurance, safety and compliance requirements and have no outstanding accounts with licensing or the department of revenue.

The net effect of these changes has been to create more opportunities for the trucking industry, with this being exemplified by the large number of applications for operating authority received (1010 for the fiscal year) while in addition, reinforcing public safety & carrier fitness and by reducing the private and public costs associated with regulation.

Fitness Review

One of the policies of the Highway Traffic Board is to promote compliance with all of the transport laws and regulations by those involved in the motor carrier industry.

A central registry of all transport law violations, along with a recording of the violators is maintained, and continuously reviewed. In accordance with predetermined levels, registration and/or authority holders are subject to action in the form of warning letters and counselling sessions.

During the past year, letters were forwarded to 78 carriers providing a brief description of the Compliance Review Program and procedures. The letter also requested that the carrier provide operational data to ensure records were correct. Twenty-four carriers received letters warning of the need to improve compliance levels. These levels provided carriers with information on convictions and an opportunity for the carrier to voluntarily improve its level of compliance.

Ten carriers continuing to incur convictions following previous warnings were requested to meet with the Compliance Review Committee.

Carriers making new applications for authority had their records under the Compliance Review Program reviewed. Where warning letters had been issued, the carrier was required to discuss the compliance record with the board and develop proposals for improvement before consideration would be given to granting the authority.

During the year a review of violation standards and carrier performance was undertaken. The study results allowed the board to establish compliance violation standards that were more equitable for carriers with different fleet size. The study also demonstrated that those carriers in the program had improved their compliance levels by 24 percent.

Vehicle Registrations and Permits

The vehicle registration unit is responsible for meeting the needs of approximately 820,000 vehicles requiring registration in Saskatchewan. This includes establishing and monitoring the allowed uses and associated fees of various registration classifications. In addition, this unit is responsible for developing and maintaining reciprocity agreements, national registration standards and registration delivery systems through Saskatchewan Government Insurance.

Number of Vehicles

Description	Registered
Public Service	1,872
Public Service - Rural General Merchandise	193
Commercial Vehicle C	18,768
Commercial Vehicle D	27,330
Farm Truck	164,062
Private Vehicle	492,305
Private Trailer	87,195
Commercial Trailer	12,280
Passenger PSV Bus	165
Passenger City Bus	392
Passenger School Bus	3,284
Taxi	522
Motor Toboggan	7,188
Licensed Auto Dealer	3,812
Licensed Trailer Dealer	89
Federal Government	1,989
TOTAL	**821,446**

The SAVR project (Single Application for Vehicle Registration) is in its final stages with a planned implementation date of March 1, 1988. This system will allow a carrier to satisfy all registration and related requirements through his home registration office for all Canadian jurisdictions in which travel is intended.

A Central Permit Operation has continued to service the motor carrier industry on a round-the-clock basis. Permit authorizations for operating authorities, vehicle registrations, and weight and dimension authorities are provided.

The Central Permit Office unit commenced operation in 1983 and has since issued 203,876 permits generating $9,618,434 revenue.

Year	Number of Permits	Permit Revenue
1983	42,617	$1,946,298
1984	55,162	$2,420,341
1985	54,956	$2,679,605
1986	51,141	$2,572,190
TOTAL	203,876	$9,618,434

Board Secretariat

This unit provides the administrative secretarial support for the Motor Carrier Committee of the Highway Traffic Board. The Secretary of the Highway Traffic Board assists applicants by counselling them on hearing procedures, by encouraging pre-hearing meetings, by scheduling hearings both within Saskatchewan and in co-operation with other provinces' transport board for the convenience of parties to the hearing.

Essentially, the board makes every attempt to expedite the application process. The board secretariat records all directives of the board, prepares board orders, minutes, and issues and maintains the operating authority certificate system. In addition to scheduling public hearings relating to applications or policy issues or changes, the secretary arranges for fitness and show cause proceedings and hearings.

Conditions of Carriage, Rates and Carrier Studies

This unit develops, co-ordinates and evaluates research into motor carrier operations, and proposals regarding conditions of carriage, rates and service standards. In 1986-87 major studies included:

- review of bus and truck insurance requirements
- an evaluation of the Motor Carrier Compliance Review Program.

Transportation of Dangerous Goods

As of March 1, 1987, the branch assumed responsibility for the transportation of dangerous goods legislation and program. The program includes the training of inspectors, legislation and policy development, and co-ordination between federal and provincial agencies.

Transport Compliance Section

This section is composed of Saskatchewan Highway Transport Patrol and Transport Investigation Units who police the road transportation industry.

The mandate of this law enforcement group is to promote compliance with rules which protect highways and the people who use them and to govern the movement of vehicles, goods and passengers. Primarily, officers interface with the bus/truck industry, but they have the authority to promote highway safety for all vehicles by taking action on flagrant violations when encountered.

For organizational purposes, the province is divided into three regions. Uniformed staff are employed to patrol the highways, and to man the 14 permanent weigh scales. These activities are conducted around the clock, however, none of the weigh scales are open on a 24 hour basis. Investigative staff operate out of the major centres and primarily conduct investigations of complaints and audits of individual carriers. The primary consideration of both uniformed staff and investigative staff is the enforcement of laws and regulations covering weight and dimensions, economic regulation (operating authority and registration) and vehicle and driver safety. While carrying out their enforcement duties staff conducted 237,750 inspections and 1,065 investigations of carriers.

This section has been promoting compliance with the new Dangerous Goods Transportation laws on Saskatchewan highways. All Compliance staff are trained and certified as Dangerous Goods Inspectors for Saskatchewan. Their duties include examination of drivers, vehicles, cargo, documentation and verification that the transport unit displays the proper safety marks.

A new weigh scale is being constructed at Estevan, as the old facility was destroyed by fire.

Of the charges and written warnings issued to companies, approximately 50% went to carriers based outside the province reflecting the high level of trucking into and through the province.

Recap of Charges and Written Warnings 1986/87

Economic Regulation	
Operating Authority	710
Registration	1,660
TOTAL	**2,370**
Weight and Dimension	
Overweight	3,013
Overwidth	307
Overlength	85
Overheight	58
Other	186
TOTAL	**3,649**
Vehicle and Driver Safety	
Rules of the Road	1,157
Vehicle Inspection Program	484
Equipment Offences	1,131
Driver's Licences	503
Miscellaneous	206
TOTAL	**3,481**

Statistical Summary of Activities

	Location of Inspections	Number of Inspections	Violation Rate
Economic Regulation	At Weigh Scale	27,290	10.7
	On Patrol	16,425	14.8
Weight & Dimension	At Weigh Scale	146,110	9.2
	On Patrol	12,806	19.4
Safety	At Weigh Scale	16,386	15.6
	On Patrol	18,733	25.7

Support Services Division

The mission of the Support Services Division is to provide services essential to the overall efficient management and operation of the department.

The primary services are in the areas of staffing, personnel management and training, financial management and control, management and administrative systems, computer services, property acquisition and property management.

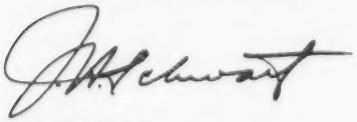
Organizationally, the division is structured on a functional basis with each of four branches, Human Resource, Management Services, Financial Services and Property Services providing the department with a specialized service.

During the year, the Driver and Vehicle Safety Services Branch was transferred to Saskatchewan Government Insurance (S.G.I.). The review of the Financial Services Branch was completed and implementation is progressing on schedule. Several Quality Circle projects were initiated in the Financial Services Branch on a pilot and voluntary basis.

An in-house review of the Human Resource Branch organization was conducted. This has been fully implemented resulting in improved services to all units of the department. Micro filming of all Human Resource Branch records has been completed providing a permanent back-up record of all personnel documents.

The first year of the department's five year Electronic Technology plan has been implemented on schedule.

Productivity improvement initiatives and accomplishments are being pursued and achieved on a continual basis. Details of specifc services and accomplishments are provided in the following individual branch reports.



J. A. Schwartz
Executive Director
Support Services Division

Grant Hodgins
Minister,
Highways and Transportation

J.R. Sutherland
Deputy Minister

J.A. Schwartz
Support Services Division

R.M. Reavley
Human Resource Branch

A.I. Massier
Management Services Branch

R.G. Coleman
Property Services Branch

P. Fitzel
Financial Services Branch

Human Resource Branch

The mission of Human Resource Branch is:

- to provide assistance and guidance in areas of management of human resources, employee benefits, industrial safety, industrial relations, staffing, classification, staff training and development
- to identify training needs and to develop and deliver programs to meet those needs, and
- to conduct manpower planning activities to ensure that the department will continue to have employees with the necessary skills to carry out its programs in an effective and efficient manner.

Major activities

- the Occupational Health and Safety Act was reviewed for operational compliance
- the department's technical training program was reviewed in order to ensure it met current needs
- branch participation in the negotiation of the Collective Agreement, and
- providing guidance and assistance to department managers in areas of the management of human resources, employee benefits, industrial safety, industrial relations, staffing, classification, staff training and development.

Labour Relations

Problem solving meetings were held with the Union on an on-going basis to resolve problems before they become formal grievances.

During the year 21 grievances were received, 10 of which have been resolved and the remaining 11 are in various stages of the grievance process. In addition 21 grievances that were received in previous years were resolved during the year.

Staffing and Reclassification

Competitions were held to fill 20 public service and 119 labour service vacancies.

There were 15 employees who requested a review of their jobs to determine if they were properly classified.

Training and Development

The department maintained its emphasis on employee training and development activities during the year. Courses included management, supervisory, technical, trade and equipment operation.

A total of 362 employees attended 133 courses with a combined total of 1848 person days related to supervisory training and management development. Courses included:

- Managing Performance Problems
- Effective Writing
- Managing Stress
- Supervisory Skills
- Public Relations for Supervisors
- Decision Making
- Micro-computers to Manage
- Time Management
- Planning Systems in Government
- Basic Principles of Supervision
- Effective Meetings
- Industrial Relations
- Leadership Effectiveness Training
- Operational Planning for Managers
- Financial Management
- Setting Ojectives and Action Planning

A total of 427 training person days were devoted to support staff and technical training. Courses included:

- Effective Writing/Clerical
- Clerical Skills/Dealing with People
- Managing Stress/Clerical
- Administrative Skills for Secretaries
- Career Development for Support Staff
- Asphalt Lab Course
- Basic Soils Course
- Critical Vehicle Inspection Course
- Asphalt Mix Seminars

The equipment training section conducted 49 courses, attended by 617 employees, for a total of 734 training days. Courses included:

- Air Brakes
- M.D.O. Training
- Preventative Maintenance
- Welding
- Reclassification of Drivers License
- LI0 Cummins Diesel Engine
- Basic Engine Tune-Up

Safety Section

A major objective of the Department is to provide a safe working environment for all employees. The promotion of safety and training in the interest of injury and loss prevention, both on and off the job, forms an intergal part of the Industrial Safety Program.

The following safety training was provided to employees.

- 422 person days First Aid training
- 492 person days of training in Defensive Driving and Professional Driving Courses
- 80 training days in safe handling and firing of explosives and 110 person days of Flag Person training
- courses were offered in Accident Causes, Occupational Health and Safety Committee training and new Occupational Health and Safety Regulations
- 763 employees participated in work site safety meetings conducted by Safety staff members

446 regular public safety and work place inspections were carried out in order to reduce the possibility of injuries to the general public and department staff.

Safety Section staff members attended 12 Occupational Health Committee meetings at various locations in the province in order to assist committees in functioning more effectively, and to provide guidance on safety matters.

Management Services Branch

Management Services Branch is responsible to provide, assist in and promote the analysis, development, implementation, operation and maintenance of effective and efficient Management Information Systems for the department. Some of the major activities are:

- developing and implementing Management Information Systems to meet the needs of the department
- providing data processing services
- training user branches and districts in the operation of data processing equipment, related procedures and applications development
- actively monitoring systems so that program managers at all levels have information available to review quantity, quality, time and cost status for each of their programs
- co-ordinating and conducting organizational reviews of the department units
- providing liaison with other departments and agencies of government in the carrying out of assigned duties.

The branch is continually involved in developing methods and procedures to improve productivity, and assisting managers in making better management decisions.

Major Activities

A five year electronic technology plan was developed for the department. This outlines the plans for the future. Some of the major items included are:

- the department should co-ordinate the acquisition of electronic equipment to ensure adequate communication links exist between current and future installations. All equipment should be able to communicate throughout the network. All workstations are to be multifunctional so that they can be used for any function desired, including:
  - data entry
  - word processing
  - messaging
  - spread sheets
  - graphics
  - data processing
  - entry or retrieving of information from SaskComp
- the department should develop electronic messaging so that a message can be sent to anyone in the department that has computer equipment. The plan is to implement a complete electronic mail environment

- information should be managed as a scarce resource. Any information on electronic media should be available to any user in the format they require.

A new data security system was implemented. Since data is a valuable corporate asset, it is important that the integrity of this data is maintained.

Major modifications were made to our financial information systems to supply more timely financial information to department managers. Computer programs were written to ensure that our information is correct and agrees with the records maintained by Revenue and Financial Services.

To improve the management of the department owned construction and maintenance equipment, a users committee was formed. This committee is given the task of defining users needs for information. Many of these needs have been fulfilled by developing retrievals from the Equipment Management Information System.

An interface between the Equipment Management Information System and Maintenance Management Information System was developed and implemented.

Property Services Branch

Property Services Branch is responsible for:

- the appraisal and negotiation for land for various department programs
- establishment of standard rates of compensation for land related damages negotiated and settled by other department units
- arranging for the legal survey services required in connection with department right-of-way and public improvement projects
- the registration of rights to property to meet the department's construction schedule and the Grid and Main Farm Access Road Program
- payment for various related services and for land where title has been secured
- the management of property rights under the jurisdiction of the department pertaining to public highways and public improvements.

Property Acquisition

- 933 land purchase agreements and related contracts were successfully negotiated on 85 highway projects. Some of the major land acquisition projects were Highway No. 16 East of Lloydminster, Highway No. 41 East and West of Yellow Creek and Highway No. 46 East of Regina. 588 properties were appraised, negotiated for and acquired by a total staff complement of seven members at a negotiation success rate of 98%.

Property Management

The volume of requests for consents and permits rose significantly during the year, however, ongoing revisions to procedures for handling certain types of requests for use of department controlled property reduced the processing time. Staff was, therefore, able to maintain the targeted level of service. Some of the activities carried out by this section were:

- initiated study to have present plan records put on an electronic system
- micro-filming of the closed Branch files, some of which date back to the first surveyed roads in the province. 413,949 frames were photographed at a cost of $13,246.36.
- ongoing microfilming of non current files
- study made on fee structure for use of department property rights
- meetings held with outside users of provincial and public highway properties to bring about a streamlining of the permit/consent system.

Property Registration

Legal survey services were secured and plans of survey and other legal documents were produced for registration in the Land Titles System in time to meet department maintenance and construction needs.

1986-87 Accomplishments

Plans of Survey recorded (all types)	1,470
Road and Public Improvement plans processed	326
Road and Public Improvement plans registered	315
Public Improvement and misc. surveys contracted	20
Provincial highway surveys contracted	300 km
Consents and Permits issued	1,880
Property agreements paid	974
Property agreements negotiated	933

Financial Services Branch

The mission of Financial Services Branch is to provide centralized financial services and timely required management information for department managers, and government agencies, within specified guidelines and regulations in the areas of:

- co-ordinating, processing, recording and maintaining records of financial transactions including payrolls, accounts payable, accounts receivable, requisitioning, and inventories
- revolving fund administration
- co-ordinating and monitoring administrative and revolving fund budgets and fiscal forecasts.

The branch processes payments and receipts, maintains records and produces financial and statistical reports. The branch also schedules and co-ordinates the preparation of the department's annual administrative budget, and the highways revolving fund budget. Fiscal forecasts are prepared for Treasury Board Division on a regular basis.

The payroll unit of the branch produced in excess of 25,700 labour service cheques during the year, and processed the salaried payroll for all public service employees in the department.

On November 1, 1986 the department implemented the new Government Human Resource System automating the Public Service Payroll. The system allows on-line access to payroll information and electronic direct deposit of salaries. An interface between the Maintenance Management Information and Equipment Management Information systems was developed so that equipment usage could be input only once to update both systems to allow common data.

A repair shop/stores budgeting system was designed and will be implemented in 1987-88.

An organizational review of the branch by Western Management Consultants proposed the establishment of a Financial Management Section within the branch.

The implementation of the reorganization proceeded throughout 1986-87.

Six quality circle groups were initiated during the year to review and analyse a variety of procedures and systems in the branch.

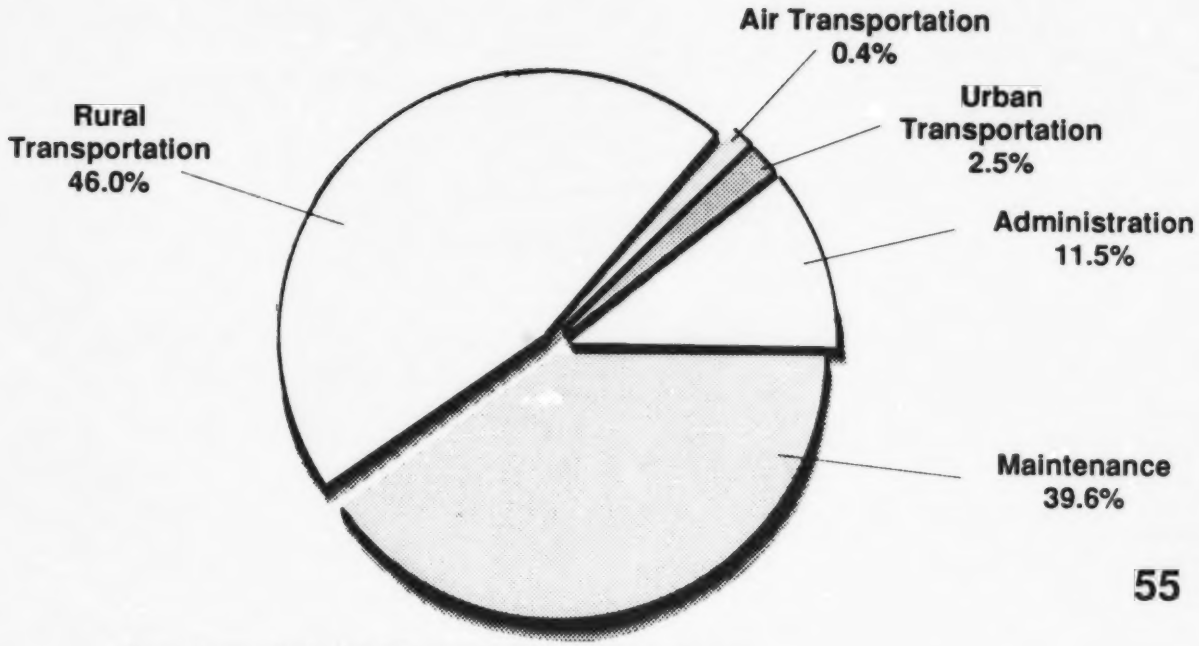
Appropriation and Expenditure 1986-87

ORDINARY	*Appropriation	Expenditure
Executive Administration	$ 965,410	$ 960,769
Financial Services Branch	738,680	714,017
Human Resources Branch	851,180	860,638
Transportation Planning and Research Division	3,822,700	3,125,277
Property Services Branch	764,890	753,120
Works Branch	115,900	107,577
Communications Branch	788,990	754,550
Operations Services Branch	968,200	1,067,926
Engineering Division	2,010,150	2,052,265
Traffic Safety Engineering Branch	326,550	364,932
Bridge Branch	401,950	393,659
Swift Current District	1,358,730	1,302,345
Regina District	1,698,040	1,696,411
Yorkton District	1,186,370	1,237,523
Saskatoon District	1,021,790	1,090,441
Prince Albert District	1,752,120	1,809,063
North Battleford District	1,528,260	1,507,353
Management Services Branch	1,157,850	1,190,827
Grants	177,920	180,394
Driver and Vehicle Safety Services Branch	667,230	680,540
Transport Services Branch	2,894,990	2,906,997
Highway Traffic Board Services Branch	624,190	576,352
	25,822,090	25,332,976
Maintenance	87,225,870	87,145,717
	113,047,960	112,478,693
CAPITAL		
Rural Surface Transportation	94,600,000	101,075,840
Urban Surface Transportation	5,200,000	5,487,111
Air Transportation	800,000	879,786
	100,600,000	107,442,737
TOTAL	$ 213,647,960	$ 219,921,430

Special Warrants
*Appropriation does not include special warrants:

Capital	$	9,000,000
Ordinary	$	1,450,000

*The effect of virements is not reflected in these amounts



Accumulated Expenditure to Date

Fiscal Year	Current Year	To Date	Fiscal Year	Current Year	To Date
1905-06	$ 49,546	$ 49,546	1946-47	$ 6,312,801	$ 103,206,424
1906-07	484,177	533,723	1947-48	8,840,535	112,046,959
1907-08	1,041,383	1,575,106	1948-49	8,853,999	120,900,958
1908-09	1,443,335	3,018,441	1949-50	8,767,610	129,668,568
1909-10	591,957	3,610,398	1950-51	10,118,744	139,787,312
1910-11	610,920	4,221,318	1951-52	12,823,535	152,610,847
1911-12	614,356	4,835,674	1952-53	18,919,646	171,530,493
1912-13	2,525,188	7,360,862	1953-54	19,135,070	190,665,563
1913-14	1,970,135	9,330,997	1954-55	20,395,779	211,061,342
1914-15	2,370,439	11,701,436	1955-56	20,127,262	231,188,604
1915-16	831,594	12,533,030	1956-57	24,140,190	255,328,794
1916-17	536,594	13,069,624	1957-58	24,491,369	279,820,163
1917-18	815,438	13,885,062	1958-59	23,697,574	303,517,737
1918-19	616,472	14,501,534	1959-60	23,104,119	326,621,856
1919-20	1,306,370	15,807,904	1960-61	25,237,066	351,858,922
1920-21	1,804,973	17,612,877	1961-62	21,591,307	373,450,229
1921-22	2,495,925	20,108,802	1962-63	22,094,828	395,545,221
1922-23	2,201,358	22,310,160	1963-64	24,167,674	419,712,731
1923-24	2,037,295	24,347,455	1964-65	27,152,511	446,865,242
1924-25	2,229,408	26,576,863	1965-66	40,679,979	487,545,221
1925-26	2,123,173	28,700,036	1966-67	54,387,704	541,932,925
1926-27	2,660,195	31,360,231	1967-68	60,227,543	602,160,468
1927-28	2,488,961	33,849,192	1968-69	60,110,923	662,271,391
1928-29	4,228,261	38,077,453	1969-70	58,560,829	720,832,220
1929-30	6,664,400	44,741,853	1970-71	68,081,718	788,913,938
1930-31	10,703,359	55,445,212	1971-72	66,933,052	855,846,990
1931-32	8,149,746	63,594,958	1972-73	63,362,093	919,209,083
1932-33	905,374	64,500,332	1973-74	69,456,878	988,665,961
1933-34	862,029	65,362,361	1974-75	96,760,356	1,085,426,317
1934-35	1,661,983	67,024,344	1975-76	110,162,524	1,195,588,841
1935-36	1,620,142	68,644,486	1976-77	123,321,325	1,318,910,166
1936-37	2,595,381	71,239,867	1977-78	132,425,146	1,451,335,312
1937-38	2,823,356	74,063,223	1978-79	160,610,850	1,611,946,162
1938-39	3,509,280	77,572,503	1979-80	158,107,523	1,770,053,685
1939-40	3,399,603	80,972,106	1980-81	168,287,313	1,938,340,998
1940-41	1,706,382	82,678,488	1981-82	191,474,090	2,129,815,088
1941-42	1,874,917	84,553,405	1982-83	192,829,361	2,322,644,449
1942-43	2,126,374	86,679,779	1983-84	215,968,431	2,538,612,880
1943-44	2,918,157	89,597,936	1984-85	214,979,173	2,753,592,053
1944-45	3,387,320	92,985,256	1985-86	215,695,526	2,969,287,579
1945-46	3,908,367	96,893,623	1986-87	219,921,430	3,189,209,009